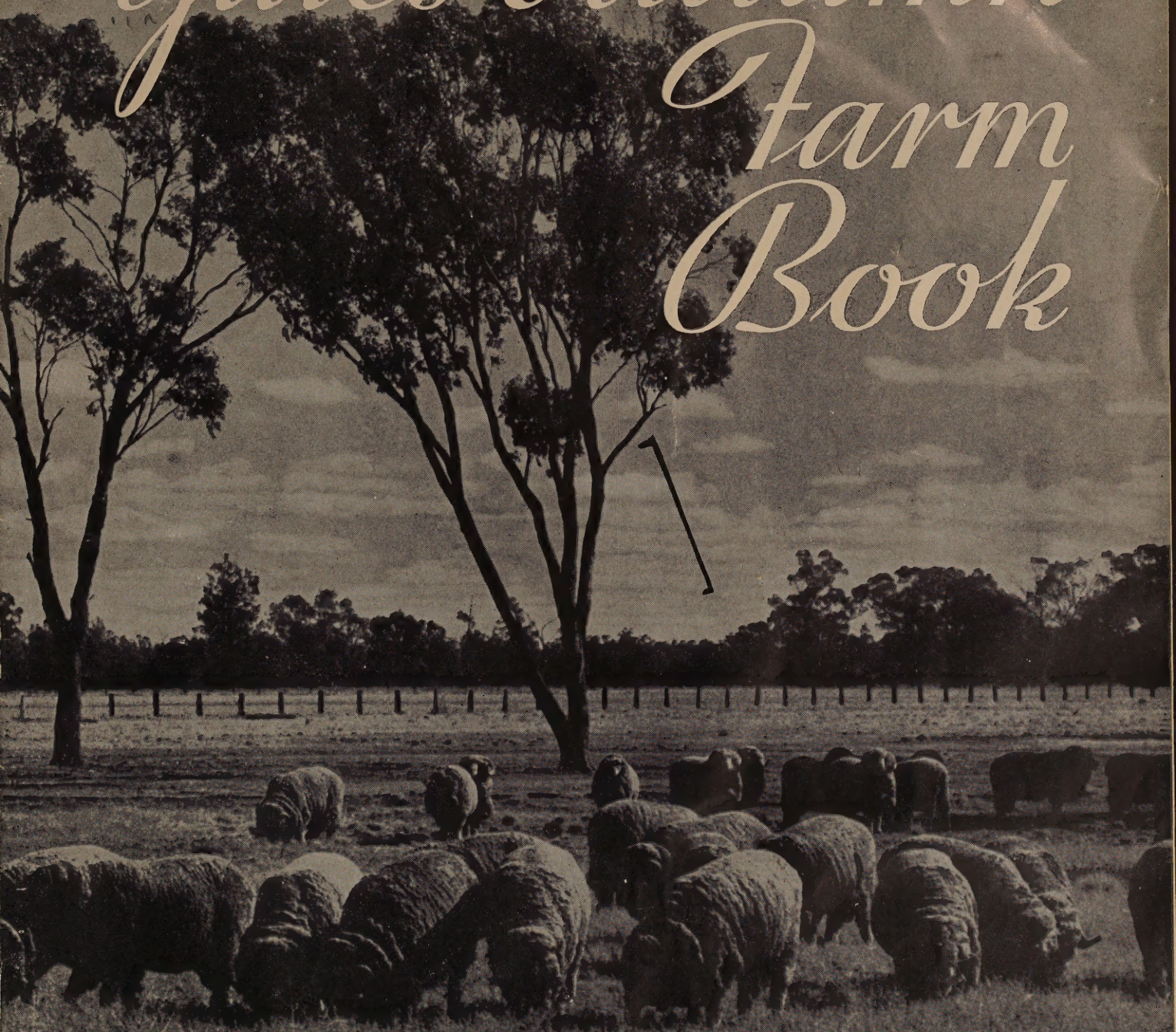


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Yates' Autumn Farm Book



*Pasture and Fodder
Crop Seeds for 1938*

FODDER & GRAZING CROPS.

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"PRODUCTION PER ACRE" is the watchword for 1938.

We join our farmer clients in looking back on 1937 as, generally, one of the best years for a considerable period. Returns on the whole were good, the season in most parts was fair, and, speaking for ourselves, we thank you for the wonderful support that we received through the year.

1938 is starting with rather dry weather in many districts and floods in others. The value of agricultural and pastoral crops is rather lower and costs are tending to rise. Under these circumstances, the aim of each primary producer must be "more production per acre," which means a higher return for each £ spent. We feel we can help you. This book is an endeavour to show that the laying down of improved pastures has, and will, increase enormously the yield per acre of all animal products, meat, wool, milk, etc. Improved pasture gives also improved quality of the product, which means top market prices.

Side by side with improved pasture must be the supplementing of extra feed for the winter and dry periods. With increased stocking should come increased sowings of supplementary green crops.

ARTHUR YATES & CO. PTY. LTD.

ARTHUR YATES & CO. PTY. LTD.

SUPPLIERS OF RE-CLEANED AND TESTED FARM SEEDS.

184-186 SUSSEX STREET, SYDNEY, N.S.W.



Harvesting N.Z. Certified Permanent Pasture Ryegrass.

"CERTIFIED" SEEDS—WHAT DOES IT MEAN?

AGRICULTURAL Seeds to-day are frequently called New Zealand Government Certified, or N.S.W. Government Certified, or Victorian Government Certified. These high-sounding names look well and rightly carry great weight with seed buyers and users; but just what does it all mean? This article attempts briefly to outline the origin and scope of Government Seed Certification, which is perhaps the most important development in the application of Agricultural Science in recent years.

To understand properly the great value of Government Seed Certification, it must be realised that its scope is definitely limited to certain aspects of Seed strain only, and a careful reading of the article will show seed users that there are many other aspects of seed quality for which they must rely on their own judgment and ultimately on the integrity of the seed merchant.

If a pasture is a permanent one, regularly grazed, the natural tendency is for the perennial plants, which will do well under the close stocking, to remain in the pasture while those individual plants which do not thrive under those conditions tend to die out. Speaking scientifically, one would say that, under those conditions, there would be in that pasture a natural selection of the individual plants for perenniality and persistence under stocking. In by-gone days, when the demand for seed for the sowing down of pastures was confined to small areas in such places as England, France, Germany, most of the perennial grass seeds were saved under those conditions. The main spring and summer flush was cut mostly for hay, but where the pasture was a comparatively pure one, some of this hay crop was gathered and threshed for seed.

With the opening up and development of new areas not naturally grassed, such as the heavy forest country of Australia, New Zealand, Canada, etc., the world demand for grass seeds developed and increased to such an extent that, where the situation and climate was suitable for the production of grass seeds, farmers started to pay more attention to the seed crop rather than the quality of pasturage of their grass paddocks. The process was a very gradual one, particularly at first, and many grasses and clover plants are still collected as a by-product off areas which are primarily used as sheep and cattle pastures, and therefore, produce good strains for the purpose for which they are used. As this idea of commercial seed saving developed it was found that if special seed-growing areas were laid down the seed could be gathered much freer of impurities and mixtures of other grasses; then also with the introduction of machine harvesting, etc., it was found that seeds could be produced much cheaper under the newer methods.

The first efforts at seed improvement were made in the way of seeking for good germination, purity and freedom from weeds; here the newer method stood out, as it can be easily understood that the germination of a compact, easily handled crop would be better and more even than seed gathered over a wider area of natural grassland, and there would be much more freedom from weeds and mixtures. What nobody realised was that this process of laying down a grass paddock mainly for seed production reversed the good natural selection which had been going on before. When a paddock is sown for a grass seed crop, the quicker growing tall types of plants naturally get away quicker than the slower growing leafy types, and there is not the heavy, close grazing to control them. These upright types are the less perennial forms and incidentally usually give more seed. It can be seen that if this seed is sown and harvested continuously on cultivation land there will be quite a change in the type of plant, due simply to the altered conditions bringing about a natural selection to a different type. The change in the type of Cocksfoot is an excellent illustration of this change in natural selection. In Denmark, Cocksfoot came to be used very largely for grass hay, and from that developed the practice of laying down temporary paddocks of pure Cocksfoot which were cut for hay or seed. By growing a sample of Danish Cocksfoot alongside, say, Certified Akaroa, which is of the old perennial pasture type, the Danish strain stands out as a quick-growing, upright, heavy-seeding type, as against the slower-establishing, leafy Akaroa type, and it is not nearly so perennial as the latter. In the case of Perennial Ryegrass in New Zealand, an additional factor came into the picture. In the main agricultural areas farmers found that rotations including grain cropping and pasturage of

Remember—Yates' Seeds are Remachined and Tested.

three or four years worked out very well, and they also found that it was well worth while shutting up some of the Perennial Ryegrass paddocks for seed. For extra feed, grass hay, or a seed crop, they normally replaced some of the grain crops with Italian Ryegrass, and consequently, the soil became well impregnated with Italian Ryegrass seed, which volunteered in the P. Ryegrass paddocks and cross fertilized with the Perennial strain, so introducing the short-lived annual or biennial blood. This caused a quick deterioration in the strain of N.Z. Perennial Ryegrass, which became very poor in perenniality and persisting habit, although quicker growing from seed and possibly more palatable to live stock.

Once the scientists realised the problem they started to compare these new types with strains growing on roadsides, and in old heavily grazed paddocks, etc., and the changes in strain and type that had taken place were quickly realised. Areas of the old good perennial and persistent types were soon found and noted, but there was nothing like sufficient areas to supply the seed demand, and it was much more expensive to collect the seed.

To the New Zealanders goes the honour of evolving a practical system of strain identification for the growing and selling of special strains which has been most successful. They started off by examining carefully old continually grazed paddocks of Perennial Ryegrass that had been sown down for many years. These paddocks were registered, and any seed saved from them was tagged, sealed and called "Mother Seed." This Mother Seed was then taken to the suitable seed-saving districts and sown down on registered areas which were again carefully watched and inspected. The resultant seed crop was again sealed and tagged with a Government certificate showing the strain and type, such as "N.Z. Certified Permanent Pasture Ryegrass," "Certified Akaroa Cocksfoot," etc. So successful has this scheme been that its principles have been adopted in many countries, and for many sorts of crops.

The foregoing shows just what seed certification means. Shortly, it is a method whereby seed of a particular strain keeps its identity as compared with similar seed of another strain, and so enables the merchant to supplement his knowledge and skill in choosing seed samples for their correct types, cleanliness and germination, by identifying for him and his clients the actual strains which it is impossible to tell by looking at the seed.

Seed certification does not relieve the purchaser of seed of all worry as to the quality and value of seeds he may buy. Price per lb. is still not the measure of real value. Seed certification, for one thing, does not cover the quality of the actual seed sample, such as its cleanliness and germinating power; as with all other seed, it is necessary with Certified Seeds to deal with a merchant on whom one may rely. Although the whole scheme has been described as most satisfactory, where there is lack of knowledge as to the full details of the certification schemes, that is, the exact sources of supply, etc., there is room for un-

scrupulous substitution and selling of poor quality at competitive rates. To prevent this, we seal with our own Metal Seals all bags of seed sent out from our own warehouse where the original stitching, sealed by the Government authority, has been touched in any way or where a quantity less than the full sack originally sealed is sent. With all agricultural seeds insist on seeing the Yates' Seal, except where original Government sealed sacks are supplied.

As with animals where the stud books, ear-tags, etc., have been successful in enabling the breeding and "strain" of a stud animal to be exactly identified, so has Seed Certification enabled the exact breeding and strain identity of seeds to be kept. The seed trade is now able to market successfully the different strains of plants as developed by the Agricultural Scientists and Plant Breeders.

This development is so far only in its infancy, but in this catalogue are described five different types and strains of Perennial Ryegrass, two of Italian Ryegrass, three of Cocksfoot, three of Subterranean Clovers, and although in our opinion they comprise all the available strains of interest to our clients at the present time, there are many other strains in being; and a good many in course of development.

Here again it is necessary to place reliance on the knowledge, skill and honesty of the seed merchant, rather than on the price quoted. The money value of the different strains of the one sort of seed may vary considerably, but in many cases the suitability of a certain strain for a particular district, or use, is so outstanding as to far outweigh the comparative price of different strains. In 1936, Tallarook Subterranean Clover was much more expensive per lb. than the Mid-season Mount Barker strain, but in the correct situation it will regularly give three to four weeks more green feed each year than the Mid-season strain, so that almost any difference in cost would be worth while.

When thinking of Certified Pasture Seeds, be sure you get the particular strain most suitable for your own conditions. This catalogue describes the essential differences between the various strains of each grass and clover, and a letter will bring you a carefully considered study of your own particular situation and requirements.



Comparing different strains on our Trial Grounds.

Shall we send Yates' Current Price List — Post free on application.

PASTURE GRASSES.

IN most cases the success of Grass sowings depends on the quality of the grass seed used, the correct variety for the situation, and the right combination of Grass and Clover. For quality, our reputation, based on a complete organisation of skilled men, Trial Grounds for continually checking the lines we sell, a Laboratory in which are conducted over 15,000 germination tests each year, stands behind all seeds sold in Yates' sealed bags.

The choosing of the correct varieties of grasses and clovers depends on a close knowledge of the different varieties. Much may be learnt from the descriptions in this book and from experience gained by others in your district, and from the local Agricultural instructors. We, too, with our expert knowledge and wide experience, drawn to a large extent from an Australian-wide circle of friendly customers, can, and will, help with your particular problems if you will write us.

With regard to the correct combination of Grasses and Clovers, where the start in Pasture Improvements is done with Clover alone (such as Subterranean Clover), be careful not to destroy the Clover cover, so carefully built up, by deep cultivation at the wrong time. All that is required is good shallow cultivation during the dormant period of the Clover.

PERENNIAL RYEGRASS. (*Lolium Perenne*)

Perennial Ryegrass, where it will grow well, is undoubtedly the "king" of all grasses, and in the cooler districts of N.S.W. and Southern Australia generally, most of the achievement in pasture improvement is due to the successful establishment of pastures based on Perennial Ryegrass.

E. Bruce Levy, the New Zealand Agrostologist, who is probably the foremost scientific authority on Grasses, rates a successful Perennial Ryegrass-White Clover stand as the highest form of Perennial Pasture obtainable. In a suitable climate the whole secret of the successful establishment of Perennial Ryegrass is soil fertility and the correct strain of Perennial Ryegrass. In the early days, Perennial Ryegrass was largely sown and was highly successful, but gradually, many of these old pastures went down in yield and the Perennial Ryegrass became replaced by other grasses such as Paspalum, Danthonia, Barley Grass, etc. We now know that this failure was primarily caused by the loss of the original soil fertility caused by the taking out of mineral salts in farm products (milk, wool, meat, grain, etc.) and the putting of nothing back. Since the advent of manuring pastures with Superphosphates, it has been proved that the consequential clover growth builds up the nitrogen and humus content of the soil so as to increase greatly the general soil fertility, and now many of the old ryegrass paddocks are getting back to their original high production by regular and adequate fertilising.

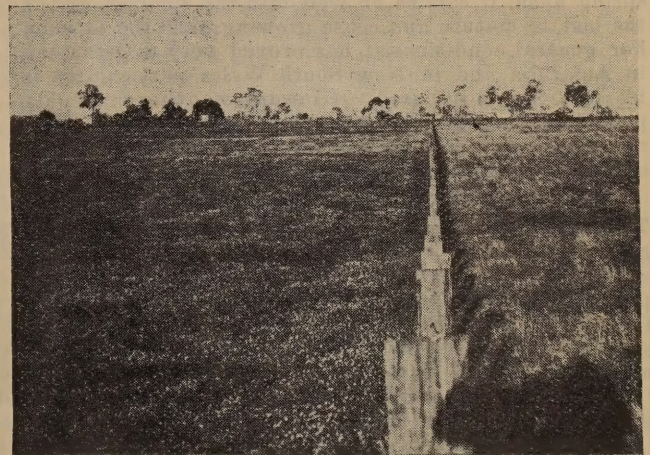
For a number of years, particularly after the Great War, much of the Perennial Ryegrass seed used was not of a really good long lasting strain, but this has been changed with seed certification and the strains described below can all be depended on for perenniality.

To show how Superphosphate and Clover growth build up soil fertility and encourage Perennial Ryegrass, one has only to look at some of the older, well-established Subterranean Clover areas, round Yass and Goulburn. Many fine areas of Subterranean Clover and Perennial Ryegrass in those districts are now carrying two and three sheep per acre on land which before grew only Danthonia, etc., carrying about two sheep to three acres. Unless the paddock has a rich, highly fertile soil, it often pays to introduce and establish the Clover with Superphosphate first, but no paddock of Clover alone will give the feed year in and

year out of a proper Grass and Clover combination. Where the climate is suitable, Perennial Ryegrass should be the main grass constituent.

Perennial Ryegrass must have a growing season extending into round about November-December, and there must be a reasonably regular and well-spread rainfall between about March-April and November-December. In New South Wales these conditions can be generally expected in the Coastal Districts and Tablelands, also the Western Slopes down to about the 1500 to 1800ft. level, particularly south of about Sydney, where most of the rains fall between April and September. In the North, where a fair proportion of the rain comprises summer storms which are of little use to Perennial Ryegrass, as that is its dormant period, it is difficult to generalise on the suitable districts, except to say broadly that a higher annual rainfall is required than in the South. One of the chief difficulties in the North is the dry spring months when Perennial Ryegrass should be making its maximum growth, and which to some extent limit the strong growth of Clovers.

The climatic requirements of Perennial Ryegrass can be summarised as follows:—



GRAFTON DISTRICT.

Left—Top-dressed Ryegrass Clover Pasture, showing high quality of feed produced as compared with a top-dressed natural pasture on right.

Yates' Current Price List contains Pasture Grasses, Clovers, Fodder Crops, etc. — Send for one.

PERENNIAL RYEGRASS (continued)—

From the latitude of about Sydney, where the winter rainfall belt starts, southwards, the climate is suitable for Perennial Ryegrass where the average annual rainfall is not less than about 24 inches, and for the western side of the Dividing Range, the altitude is not less than about 1500 feet. As one goes south where a bigger proportion of rains fall in the April to October period, and summer comes in later, therefore the need for altitude lessens. In Victoria, almost any district with a minimum 25in. average rainfall should be suitable.

From Sydney northwards, the suitable climate seems to follow the 30in. average annual rainfall belt, with an elevation of about 1000 feet on the coastal side of the range and about 2000 to 3000 feet on the inland side of the mountains.

As the soil and climate conform to the requirements described above, so should Perennial Ryegrass and a suitable Clover be expected to form the basis of the improved pasture. Under the best conditions a Perennial Ryegrass and Clover pasture will be rather short of feed through the summer and early autumn, so that other constituents should be considered for the pasture. Cocksfoot in the cool climates, and Paspalum Dilatatum in the warmer districts, work in well with Perennial Ryegrass, and under suitable conditions will give a good body of feed through the summer and autumn when the Perennial Ryegrass is not making much growth.

When sowing Perennial Ryegrass, it is imperative to use the correct strain. Much of the old type of seed, poor in perenniality, is still sold, but is quite useless when a long-lasting pasture is required; for that purpose, one of the best "Certified" strains only should be used. There are a number of these available, all good, but some are much more suitable than others for particular climates and conditions.

GOVERNMENT CERTIFIED HAWKES' BAY STRAIN.

This is the best New Zealand type, and has proved exceedingly good under Australian conditions, so much so, that it is taken as the standard type for comparing other strains in all official tests. The New Zealand Hawkes' Bay strain is a very perennial, close-swarding type, leafy and with probably the longest season of growth of any. While making its main growth in the spring flush, it carries on well into the summer, and is the last to mature and cease growing until the autumn. For general conditions it has proved very satisfactory in Australia and in New South Wales particularly is by far the most used. Growers wanting a highly persistent permanent pasture cannot do better than use this strain. Of this strain there are three grades of certification, as follow:—

SPECIAL NEW ZEALAND GOVERNMENT CERTIFIED HAWKES' BAY "MOTHER" TYPE—This grade comes from the best paddocks which have been sown down for at least five years, and the seed is principally used for the laying down of special pastures for production of seed. Unless it is intended to save "Certified" seed from the pasture, it is an unnecessary expense to use this grade. The quantity of "Mother" Seed saved each year is comparatively small, and it is very expensive.

NEW ZEALAND HAWKES' BAY GOVERNMENT CERTIFIED PERMANENT PASTURE is the next grade, and is the one generally used. It is within 2% of the strain purity of "Mother" Seed, and is the best for general sowing. It is exactly the same strain as the

"Mother" Seed, and the only real difference is that in New Zealand and Tasmania, where they have similar certification schemes for Perennial Ryegrass, "Mother" Seed must be sown for the resulting crop of seed to be certified immediately.

NEW ZEALAND HAWKES' BAY GOVERNMENT CERTIFIED COMMERCIAL is the third grade and is exactly the same as the Certified Permanent Pasture, except that there is no examination in the paddocks; the seed type being checked by testing sprouted seedlings under a quartz lamp. In New Zealand it has been found that all the good Perennial seedlings give a low percentage of glow under the quartz lamp, whereas the shorter-living types give a high percentage of glow. This has been proved so accurate that the New Zealand Department of Agriculture, for their own purposes, treat the Permanent Pasture Certificate and Commercial Certificate as of equal value.

Where price is a consideration, there is no doubt that a good growing clean sample of Commercial Certified seed is much better value than a poorer grade of Permanent Pasture Certified at the same price.

GOVERNMENT CERTIFIED VICTORIAN STRAINS.

Certified Ryegrass is now available from Victoria, principally from three districts—Colac, Clunes, and Kyneton. Seed from the three districts is all much the same type, although possibly the Clunes is the earliest maturing of the three, and a little more suited to drier climates. We offer these three strains under the name of **VICTORIAN CERTIFIED RYEGRASS**. These Victorian strains can be classed as truly perennial with relatively long, broad leaves, beginning their growth earlier in the spring and maturing earlier in the summer than the Hawkes' Bay type. The main difference to Hawkes' Bay type is their summer dormancy—in that they make no growth at all in the summer as compared with the Hawkes' Bay strain, and on careful tests in New Zealand they tend to rust severely in the late summer. These Victorian strains have good persistency; trials made in Victoria indicate that pastures of these strains will last like the Hawkes' Bay type, but in New Zealand it is considered that the Hawkes' Bay strain is more persistent.

Growers wanting this type of Ryegrass are asked to particularly specify Victorian Certified, and where specially required, we would try and send seed from one of the three particular districts.



A heavy mat of Subterranean Clover, showing how fertility is built up.

If interested in Vegetable Market Growing, our latest publication, "Vegetable Market Crops," should be helpful.



Lambs as big as their mothers on a properly-sown pasture.

WIMMERA RYEGRASS.

(*Lolium Rigidum* Var. *Strictum*)

A heavy seeding annual member of the Ryegrass family, Wimmera Ryegrass is very hardy, and as the seed carries over in the ground through the summer droughts under Australian conditions, it has proved of the utmost value and has been instrumental in helping forward pasture improvement in localities far too dry for permanent grasses. Having the same ability as Subterranean Clover to re-seed itself each year it was at one time thought that they would make an ideal combination for areas too dry to carry perennial grasses but where there is a good winter and spring rain. Unfortunately, Wimmera Ryegrass does not persist and spread on hard, uncultivated ground like Subterranean Clover. It is quite satisfactory on rich, crumbly, fertile country such as one finds in the North-West around the Gunnedah districts, and where the soil has a high self-mulching quality which creates a soft, loose seed bed during the summer dry period in which the seeds can find a good holding and cover to come away with the autumn rains. However, it has been found that some sort of surface stirring of the soil such as a spring toothing or heavy harrowing rejuvenates the stand, and, if this can be done, even on hard soils Wimmera Ryegrass can be kept as a good permanent pasturage.

Being a quick-growing member of the Ryegrass family, Wimmera is very sensitive to soil fertility, and it is essential, except where soil is extraordinarily rich in nitrogen such as the black soil country of the North-west, to have some sort of Clover growth flourishing with it. In the south the best combination is Wimmera Ryegrass and Subterranean Clover. The building up of the soil fertility and the loose mulch left by the Subterranean Clover helps to form a good seed bed for the Wimmera Ryegrass the next year and much less cultivation of even the hardest ground is necessary once a good cover of Subterranean Clover is established. In the drier parts where Subterranean Clover is not suitable, Wimmera Ryegrass will still flourish, as it has the ability to grow in quite a short season; the usual combination under these circumstances is Wimmera Ryegrass and Lucerne, sown at the rate of 1-2 lbs. Lucerne per acre and 2-4 lbs. Wimmera Ryegrass, according to the rainfall. This is quite a good combination, particularly if the paddock is cultivated in the late summer, which should be done for the Lucerne, at the same time forming a loose seed bed for the Wimmera Ryegrass.

Under ideal conditions Wimmera Ryegrass will quickly thicken up, in fact it frequently becomes so

thick as to almost choke itself. Pasture management in the way of heavy feeding off in the late spring before the seed is set, or a light cultivation to tear out the surplus seedlings in the early autumn, usually controls this difficulty.

Wimmera Ryegrass is relished by all classes of stock, is of very high feed value, and is particularly valuable to the sheep man for carrying his sheep when the native grass seeds are falling, as there are no objectionable spines or burrs on this grass at any stage of its growth.

One of the most important and valuable uses for Wimmera Ryegrass is the sowing of cultivation land which is being let go to pasturage. If a light sowing of Wimmera Ryegrass, say 2 to 3 lbs. per acre, is included with the last grain crop, the Wimmera Ryegrass will grow and seed itself freely, then the next autumn the young seedlings will quickly sprout through the old stubble and form a quick heavy covering of nutritious pasturage; it will tend to check and keep down the growth of useless weeds which would quickly take advantage of the unused or uncovered soil surface. In suitable districts, 1-2 lbs. per acre of Subterranean Clover should be included with the Wimmera Ryegrass. The previous cultivations will tend to keep the soil loose for some years, which is just what the Wimmera Ryegrass requires, and if, after a few years, it is decided to again put the land into crop, the soil will have benefited by the great increase of humus caused by the heavy growth of the Wimmera Ryegrass, either as animal droppings or as rotted grass and roots incorporated in the surface soil. The soil will, of course, be well impregnated with seeds, but these can be easily eradicated by the ordinary cultivation during the fallow preceding the crop.

It has been known for Wimmera Ryegrass seed to be adulterated with the cheaper pseudo-Perennial or Italian Ryegrass, which is very hard to detect. The greatest care is taken by us to procure our Wimmera Ryegrass seed from districts where the stands are pure and the plants are of the best type. Another important point also is the fact that practically all samples of Wimmera Ryegrass saved in Australia contain Hexham Scent. While this weed is of no great importance in a permanent pasture, it is exceedingly detrimental in wheat paddocks, and where there is any idea of using the land later on for a grain crop the greatest care should be taken to sow Wimmera Ryegrass free of this objectionable weed. All Yates' Wimmera Ryegrass from selected pastures is heavily and carefully dressed over machines specially equipped for the eradication of Hexham Scent. We believe that we are the only people in Australia who have the special machines necessary to do this job properly.

ITALIAN RYEGRASS.

(*Lolium Italicum*).

Italian Ryegrass is a biennial under favourable conditions. It is probably the quickest and most luxuriant growing of all the winter grasses when sown on well-prepared land. We recommend that a little Italian Ryegrass be included in all grass mixtures sown in districts of good rainfall. Acting as a "nurse" crop for the slower developing perennial grasses in the mixed sowing, Italian Ryegrass also gives a quick bite to stock which are thus encouraged to tramp quietly over the newly-sown area. This unhurried "hoof cultivation" is just what is required to compact the soil and strengthen the root systems of the developing perennial grasses.

As a "Temporary Pasture" grass, Italian Ryegrass is superb. 15-17 lbs. of this grass with 3-5 lbs. of Perennial Red Clover per acre, or a mixture of Perennial Red and Berseem Clover, give about the quickest-growing pasturage of all grasses and clovers. There is no sweeter grazing for stock during the cooler months of the year, and no better "Meadow Hay" is produced when cut in the late Spring. A "Temporary Pasture" of this type will last for upwards of two years or more (if well managed), giving a wonderful return over the period of its most vigorous growth. For spelling cultivation land which may be subsequently brought back into cropping without fear of the grass and clover persisting when ploughed under, there is really nothing better than this mixture. The best time to sow is in the autumn. Fertile soil conditions are essential.

On rich lands in good rainfall areas Italian Ryegrass is deserving of more notice than it has hitherto received as an alternative crop to Oats for winter and spring grazing. Its very quick, upright, succulent, leafy growth, palatability, and ability to stand very heavy stocking give it a great value in this respect. As a smothering crop to clean up cultivation land a heavy sowing gives good results.

On the North Coast of New South Wales, Italian Ryegrass is frequently sown in the Maize paddocks, just about tasselling time, in those districts January or February, at the rate of about 30-40 lbs. per acre. The Maize shelters the young seedlings, and by the time the Maize cobs have been picked, there is a great body of feed on the Ryegrass which, together with the aftermath of the Maize, gives great feed through the winter, and is good practice because the Italian Ryegrass smothers useless weed growth and makes a



Italian Ryegrass, N.Z. Government Certified.

fine green manuring crop for ploughing in the following spring or summer.

On late summer burns, where *Paspalum* or *Rhodes* is being sown for a permanent pasture, the addition of, say, 8-10 lbs. per acre of Italian Ryegrass will give a quick growth to hold the ash bed from washing away, smother weeds, and provide winter feed, so making good use of the land until the *Paspalum* and *Rhodes* establish themselves the following summer.

We are now able to offer two grades of Italian Ryegrass as follows:

NEW ZEALAND GOVERNMENT CERTIFIED—

This strain is the true leafy biennial type most suitable to use when laying down temporary pastures, particularly in combination with Perennial Red Clover. It carries into the second year much better than the uncertified grade, and throws a much leafier growth.

UNCERTIFIED NEW ZEALAND is a more annual type, which is quite good to act as a nurse crop when sowing down a perennial pasture or for sowing over cultivated land and through Maize, etc., for winter feed for one season only.

COCKSFOOT.

Next to Perennial Ryegrass, Cocksfoot is the most important grass for permanent pastures. For best growth it prefers a rich free open soil with good rainfall, and grows to perfection in the Moss Vale-Robertson districts on the South Coast of New South Wales, on the loose deep volcanic soils found there. Cocksfoot was usually considered to need a high annual rainfall, but it seems to stand well in a 24 or 25in. rainfall in places like Harden and Canberra on soils hardly fertile enough for Perennial Ryegrass, and we consider that the full value of Cocksfoot is not really appreciated in Australia as yet.

In the Southern winter rainfall belt of Australia, Perennial Ryegrass makes its growth at the times the rains come, and therefore makes full use of the possible growing period; but as one comes northwards, and rain can be expected in early summer with storms right into mid-summer, Cocksfoot should be well worth while, as it makes its main growth in late spring and early to mid-summer, and so can take advantage of rain falling then, which would be too late for Perennial Ryegrass. Cocksfoot will not stand up to close



Single Plant Selections of Cocksfoot, showing individual variations in type.

For Prices of Yates' Pasture Seed, write for Current Price List.

COCKSFOOT (contd.)—

continuous stocking as well as Perennial Ryegrass, but nevertheless it is very good in this respect, particularly if it is stocked intermittently and allowed to make reasonable growth between grazings. A good strain of Cocksfoot should be well worth while including in permanent pasture mixtures in all districts of 25in. rainfall or better, where Perennial Ryegrass will grow, particularly towards the North, where summer storms may be expected.

Cocksfoot likes a deep loose soil which is not suitable to Perennial Ryegrass, and on the deep loose red and chocolate volcanic and brush soils of the coastal belt of New South Wales, Cocksfoot should be the main grass in any mixture sown; although there is ample rainfall in these areas, the ground dries out badly owing to the absence of a stiff subsoil, but the deep roots of the Cocksfoot are able to penetrate well down below the surface. Many of these loose soils gradually compact with the rain and stock-tramping after the pasture has been laid down for some years, and then it is often noticed that Perennial Ryegrass and White Clover appear in the pasture; this is all to the good, and every care should be used not to destroy the soil compaction. Cocksfoot, particularly the most perennial strains, such as New Zealand Akaroa types, is rather slow to germinate, and sometimes a little difficult to establish; great care should be used not to over-stock the paddock until the grass is well established with a good hold in the soil.

The different strains of Cocksfoot seed vary greatly in cost, but the extra value of the better strains is so great, buyers should beware of so-called "cheap" quotations. The poor type Danish seed usually costs about half as much as good true Akaroa type, and the seed is cleaner, brighter and with better germination, but in a permanent paddock the Danish strain is of very little value. When buying for planting in a permanent pasture, make certain of getting the true Akaroa strain, even if you have to pay a penny or two extra per pound from the source you can rely on.

YATES' PRIMEST NEW ZEALAND AKAROA TYPE, GOVERNMENT CERTIFIED "MOTHER" SEED is the true perennial, leafy swarding type; while rather slow of establishment, it is very permanent and drought-resisting, and grows well through the summer and early autumn. Under all tests this strain has proved to have by far the highest carrying capacity, and in all types of permanent pasture it is well suited to our Australian climate.

LOCAL VICTORIAN STRAIN—A very good strain closely approximating to the New Zealand Akaroa type. Unfortunately, at present no certification scheme covers this strain, and it is difficult to be sure that any seed offered is not cheap Danish.



Close-up of a really good Pasture Sward, showing correct proportions of Clovers and Grasses.

PRIME DANISH COCKSFOOT—For those specially requiring, we usually stock a little of the cheaper imported Danish Cocksfoot in a very nice sample, but although this strain shows great vigour for the first year the crowns quickly die out and allow weeds to take their place in the pastures, but for temporary pastures it has its use.

PHALARIS TUBEROSA. (Bulbosa)

A wonderful winter-growing grass of outstanding permanency under quite adverse conditions. It is adaptable to heavy clay soils or even light soil provided it is reasonably deep with a permeable subsoil. Soil of high fertility is necessary to create maximum growth, and should Subterranean Clover be introduced, soils which now will not maintain Phalaris will do so through the increased fertility within a few seasons.

Once established it is highly persistent and maintains itself better than Perennial Ryegrass throughout droughts and even extensive wet conditions. In situations most suited to Perennial Ryegrass, Phalaris Tuberosa is by no means superior, and its main use is in drier localities and deeper soils not suitable to Perennial Ryegrass.

Phalaris Tuberosa presents some difficulty when attempting to establish it. It is not easy to secure a good strike as being slow to germinate it suffers greatly from the competition of other grasses or weeds. The land must be thoroughly cleansed. Once established, however, it is highly persistent and will resist the competition of all other plants. Owing to being susceptible to competition from other grasses of more surface rooting habit in its early stages of growth, it is preferable to sow Phalaris Tuberosa in conjunction with Clovers only. It is necessary to introduce the plant in all places where it is required, as, unlike Sub. Clover or



Manuring trials on improved pasture.

PHALARIS TUBEROSA (continued)—

Ryegrass, it does not spread from paddock to paddock of its own accord.

We now handle two types of *Phalaris Tuberosa*—

GOVERNMENT CERTIFIED PERMANENT PASTURE—This seed is saved from areas which have been laid down for many years, and proved to be the real permanent type. The seed is saved and bagged under Govt. supervision, and is certified and sealed.

For prices of all Yates' grass, clover and general fodder crop seeds, see Yates' Current Price List.
Available on application.

RHODES GRASS.

(*Chloris Gayana*)

Rhodes Grass is a summer-growing perennial upright grass which throws out long jointed runners, rooting at the nodes. It is a quick-spreading grass, and is of particular value on second-class and hilly land where *Paspalum* does not thrive. Rhodes Grass is an excellent fodder, although it has not quite the same high feeding value as *Paspalum Dilatatum*. At the same time, it will grow well under drier conditions, and therefore is particularly suitable for warm districts of summer rainfall too dry for *Paspalum Dil.*, which prefers the moister coastal climate, whereas Rhodes, provided it gets a reasonable rainfall, will thrive inland.

Rhodes Grass is doing very well as far inland as Roma (Queensland) and districts like Dalby. In New South Wales it has been recommended and proved successful in the 25 to 30-inch rainfall belt of the North-west, but in these drier areas it is very difficult to get a good "strike," as the plant seems to require two or three weeks of moist, muggy weather to establish itself successfully. Once properly established, it is remarkably hardy for a perennial grass, and will stand up to quite dry conditions. If sowings of winter grasses, such as *Wimmera Ryegrass*, *Lucerne*, etc., are being made, it is quite a good practice to include a small proportion of Rhodes in the autumn sowing, as

the seed will lie in the ground and come away as the ground warms up in the spring and early summer; but if sowing alone, Rhodes Grass should be sown at a period when good summer rains can be expected.

On the Coastal belt, Rhodes is a valuable grass on hillsides where the soil is too light and well drained for *Paspalum Dil.*

PASPALUM DILATATUM.

(Yates' Prime "Handshaken")

One of the most important and valuable pasture grasses for warm climates with a good summer rainfall. A summer-growing perennial of very strong growing habit, it starts to grow with the first summer rains after the ground has warmed up, and it keeps growing until caught by the heavy winter frosts. *Paspalum Dilatatum* is the most important permanent pasture plant of the Coastal belt of Northern New South Wales and Queensland. On good soil its feed value is very high, and it is a wonderful milk producer. If let go it becomes very coarse and long, and in a good season it will frequently grow as high as the fence. When rank, it loses a good deal of its feed value, and is much better when kept properly controlled. *Paspalum Dil.* is such a vigorous grass that, unless properly controlled, it is liable to take charge and drive out almost every other plant species. At the same time, under heavy grazing conditions, clover grows well with it, and is of the utmost value in making a good pasturage.

One of the big difficulties with *Paspalum* is that old stands gradually become sod-bound, and the *Paspalum* does not come away nearly so quickly when in this condition. This trouble is largely a matter of soil fertility and pasture management. Provided the fertility of the soil can be kept up by growing clovers, *Paspalum* does not become sod-bound nearly so readily. Where it will grow, *Paspalum* is an ideal constituent to make a combined winter and summer pasture; it combines well with Perennial Ryegrass, White Clover, and under some conditions, Cocksfoot and Subterranean Clover. In the sub-tropical North Coast of New South Wales and Coastal Queensland, where *Paspalum* is the main grass, it pays to tear up the old *Paspalum* stands which have become sod-bound. If done in the autumn, this allows the introduction of Ryegrass, White Clover,



Paspalum in Casino District oversown with Autumn Grasses and Clovers.

Yates' Current Price List contains Pasture Grasses, Clovers, Fodder Crops, etc. — Send for one.

PASPALUM (continued)—

and in some cases, *Phalaris Tuberosa*, and provided reasonable winter and spring rains are received, the mixture gives a wonderful "all the year round" pasture, as the winter-growing White Clover and Ryegrass grow through the winter and spring; when they become dormant in the late spring, the Paspalum is breaking into growth and carries on into the following winter. In the more southerly districts particularly on the coast, Paspalum is a valuable addition to Ryegrass and Cocksfoot pastures, as it comes into growth from about November-December, and keeps going right through to the autumn, so overcoming the rather dead period when the Ryegrass is, more or less, dormant. In sub-tropical conditions, it is most important to keep Paspalum low, and not to let it get away into rank growth. If this is done, the value of the feed is kept high and the other constituents of the pasture are not crowded out.

In the sub-tropical and tropical coastal areas, Paspalum is most important for sowing on new country which has been recently burnt. The ash from the burnt scrub forms an ideal seed bed, and a quick "strike" results if the Paspalum is sown at the right period of the year, which is usually December-January, just when the summer rains start. For these conditions, it is frequently mixed with Rhodes Grass, which, being a running grass, spreads rather more quickly, but eventually is usually driven out by the Paspalum.

Paspalum seed varies greatly in quality. Owing to the fact that the seed in the head ripens unevenly, it is impossible to machine-gather good quality Paspalum seed. The only way to get high quality seed of good germination is to be sure the seed is of Hand-Shaken quality. This means that the seed is hand-gathered by shaking the uncut heads over a dish; by this method the ripe seed is gathered while the immature seed is left on the plant. We do not stock anything but the prime Hand-Shaken seed.

For the last two or three years, Paspalum seed has been rather badly affected with ergot, which does not seem to do any harm to the pastures, and so far as we know, there have been no authenticated instances of stock suffering from ergot in pastures, but in some cases it does affect the quality of the seed. We watch this carefully, and samples we offer contain a minimum of this trouble.

PERENNIAL PRAIRIE GRASS.

While this species is botanically the same as the ordinary Prairie, *Bromus Unioides*, it comes from a single plant selection of a thick-stemmed, procumbent, stooling type, which apparently withstands constant stocking very well. It is undoubtedly much higher yielding and palatable than the ordinary strains.

In grazing trials, particularly under irrigations where the pasture is very closely stocked, Yates' Perennial Prairie has proved exceptionally persistent and valuable.

The only seed we offer is from specially grown crops developed from the original stud block.

PRAIRIE GRASS.

(*Bromus Unioides*)

For rich, loamy land, with a good rainfall, this is a most valuable grass, particularly for the dairyman. It gives a wonderful growth of succulent, palatable fodder. It is essential that common Prairie Grass be not constantly grazed, as this will kill it out. When a fair growth has been made, it should be stocked heavily, and when fed down spelled again until a good new growth has been made. By having paddocks well sub-divided, this system of grazing can be carried out. It will prove for grazing almost as valuable as a crop of oats, with the advantage that it will last for several years without re-sowing. On soils liable to be tramped very hard and which remain in this set condition, it will not respond to this treatment so well. To maintain a good covering it should be allowed to seed itself down at the end of each growing season. It is a good plan to use a little in pasture mixtures to give a good body of feed while the Perennial Grasses are establishing themselves. If sown with Lucerne on good land the combination will give wonderful grazing if spelled regularly after being closely grazed. The Prairie Grass gives good results when Lucerne is dormant.

Sow 20 to 40 lbs. per acre if used alone. When used in mixture, use one to three pounds per acre.

YATES' FINEST BRIGHT RE-MACHINED—A heavy grade plump seed of a very high percentage of germination and purity.



Ryegrass Cocksfoot Pasture on Southern Highlands.

For Prices of Yates' Pasture Seed, write for Current Price List.

SHEEPS' BURNET.**(Poterium Sanguisorba)**

This herb thrives on poor and shallow soils, either on flats or hills, and will stand heavy stocking. Having a long tap-root, which penetrates deeply into the soil, it will remain green when other fodder is burnt up, thus enabling it to withstand long periods of dry weather without its growth being checked to any great extent. Once established it is very persistent, quickly shooting away after every shower. Being a perennial, it grows practically throughout the year, giving the most herbage in the spring. All types of stock are fond of the foliage, and thrive on it, particularly sheep. We specially recommend its inclusion in mixtures on second-class soils in districts of 25-inch rainfall and over, where the summer is cool. Wherever possible, our supplies are drawn from Australian sources, but, owing to seasonal conditions, supplies are uncertain, and occasionally we have to draw on European supplies. Local seed is to be favoured, as it is of better germination and hardier habit. Sow 10-12 lbs. per acre alone. When included with grass mixtures, use 1-3 lbs., according to the mixture.

GIANT OR BLUE PANIC GRASS.**(Panicum Antidotale)**

A grass which is extremely drought-resistant, and particularly adapted to areas of restricted rainfall where summer storms are experienced, such as Western New South Wales and the inland of Queensland. It is perennial, making its main growth in the summer. To stock it is very palatable, and should be tried in all districts of rather low rainfall, where the more usual grasses will not grow successfully. Great success

has been obtained in sowing in combination with Lucerne. Generally speaking, the seed should be sown in the spring at the rate of from 1-3 lbs. per acre, on well-prepared country, but under certain circumstances it can be sown in combination with other grasses if thought wise, in the autumn. Seed is usually rather expensive, and at the present time we would recommend it to be sown on cultivated areas so as to lessen the risk of a bad "strike."

DANTHONIA**(Wallaby Grass or White Top)**

One of our main native grasses found naturally all over Australia down to the region of about 19-20-inch rainfall. It is a very valuable species and makes excellent pasturage, particularly for sheep. It does not demand high soil fertility, and in the better rainfall districts it is gradually superseded by the more succulent Ryegrass, etc., as soil fertility is built up by Clover growth and top dressing with fertiliser. It is rather difficult to establish from seed and occurs naturally over most areas suitable for its growth.

CHEWINGS FESCUE.**(Festuca Rubra var.)**

This grass makes a first-class pasture for sheep, as it is most palatable. It has been found suitable to colder districts on second-class country rather dry for Ryegrass, and forms a good sward where other grasses would not succeed. It is permanent, and throws up a useful amount of feed in the early spring. We think a little of this grass might be included in a mixture for a permanent pasture in rather sour, hilly country in the colder fine wool-growing districts of good rainfall,



A well-managed Ryegrass White Clover Pasture, showing value of small paddocks and rotational grazing.

Yates' Current Price List contains Vegetable and Flower Seed Prices — Send for one.

CHEWINGS FESCUE (continued)—

where it should be valuable for thickening up existing pastures. Being a dwarf grower and exceptionally hardy, it should be suited to such purposes. On account of its foliage growth and evergreen appearance during the winter, it is suitable for lawns, golf links and ornamental parks, and forms one of the grasses in our special Lawn Grass mixtures for cool moist climates.

AGROSTIS.

As an agricultural grass *Agrostis* has been little used, but may have some value in cold districts for sour, rather wet land, too cold for Ryegrass. Under these conditions it will grow on land not sufficiently fertile to carry a good sward of Ryegrass or White Clover. It is a fine foliaged perennial, suitable for and capable of forming a close, dense turf on second-class country. In the *Agrostis* family there are several species, the most commonly known being *Agrostis Tenuis*, New Zealand Browntop or Bent. Provided ample water is available throughout the summer, or the weather is reasonably cool, *Agrostis Tenuis* is remarkably hardy. To keep it in full growth during the summer it must be kept growing by manuring well and copiously watering. As a turf grass it is superb, and makes by far the finest and best sporting turf we have in Australia. In cooler districts it is inclined to be a little soft, and this can be corrected by adding *Chewings Fescue* to the mixture. The seed we stock is bought specially for lawn sowings and is Government Certified as free of the coarser growing Red Top or *Agrostis Vulgaris*. *Agrostis Vulgaris* is used to some extent for sowing on golf fairways or where a rather coarse sward is satisfactory. As an agricultural grass it is used on rather low, wet land in cold climates.

TALL OAT GRASS.

(Avena Elatior)

This grass is frequently used in pasture mixtures and has proved very hardy. It appears to replace Cocksfoot in soils too poor or light for the latter; it has a deep-rooting system, which protects it against drought. It is a good winter grass and a quick grower. Stock may at first be averse to it, but when used to it, eat it readily enough, especially if sown in mixture with other grasses. Customers are recommended to try this grass in land which is rather light in character for other artificial grasses, and we would be pleased to have reports after testing. It is best included in mixture with other grasses at the rate of from one to three pounds per acre.

TALL FESCUE.

(Festuca Elatior)

A very rank-growing perennial grass suitable for the cooler districts. While it prefers rather wet conditions, it is remarkably hardy, and is well worth planting on country rather too dry for Cocksfoot and Ryegrass. Planted under moist conditions, it is exceedingly rank-growing, and can become quite a nuisance; but on second-class country in the cold districts it is well worth sowing, as it has quite good feed value, particularly if not too rank, and is exceptionally hardy. Tall Fescue is a very close relative of *Festuca Mariae*, a plant recently introduced by the Council for Scientific and Industrial Research, Canberra, and which looks as if it may have some value for second-class soils under rather dry conditions. Where the better grasses, such as Ryegrass, Cocksfoot, etc., will grow, Tall Fescue should not be considered.

ELEPHANT GRASS.

(Pennisetum Purpureum)

This is a grass that should be grown mainly along water courses and in marshy depressions. Plant cuttings in the spring, about 3 feet apart. Seed is not available. It is a vigorous growing plant, attaining a height of 12-15 feet. Tests conducted by the Department of Agriculture have shown a return of about 50 tons of green fodder per acre per year. It is of high nutritive value, but should not be allowed to grow too high and coarse.

COUCH GRASS.

(Cynodon Dactylon)

This grass stands heat and drought well, and is specially suitable for dry and sandy spots on the Coast and other mild districts of fair rainfall, and where other grasses will not flourish. As a summer grass on poor soils it has no equal. During the hottest weather it always has a green appearance, but, unfortunately, is not of such high nutritive value as other grasses. In cool districts where frosts are severe it is dormant during the winter. It is a valuable plant for binding sand hills and dams and for sowing around sheep and cattle yards. Seed should be sown in warm weather and after rain, and unless this is done, germination is often unsatisfactory. In warm climates, this grass is largely used for lawns, making a close fine turf, and for this purpose about 6 lbs. per 100 square yards should be sufficient. Sow in spring and summer.

KIKUYU GRASS.

(Pennisetum Clandestinum)

Kikuyu has proved of great value under special conditions, such as combating bracken fern and other strong weed growth. It can be used with success as a soil binder for such places as creek banks, dams, etc. It responds readily to better soil fertility, but will also thrive fairly well on poorer light soils. It has proved remarkably drought-resistant, and present indications point to the fact that it is a grass suited to localities with a rainfall of 25 inches and over. This grass is perennial with a strong system of surface and underground runners which quickly root at the joints and send out fresh runners. Seed is not available, and roots should be planted during the spring, summer and early autumn months. Growers should not entertain the idea of planting this grass on better-class country, and should keep it out of cultivated paddocks, for once established, it is persistent in growth and can become a pest. When planting, if possible, plough the land, opening the furrows 6 inches apart, and dropping the rootlets 3 feet apart. At this rate, 2500 plants will suffice for one acre.

KENTUCKY BLUE GRASS.

(Poa Pratensis)

Best growth is obtained from soils of limestone foundation, and it also grows well on volcanic or alluvial soils. Generally speaking, however, it has been superseded by Perennial Ryegrass and *Phalaris tuberosa*, both superior pasture grasses. It is very resistant to frosts. It is one of the best grasses for lawns, and is included in our Lawn Mixtures, where it assists in making a close sward of beautiful colour.

Remember—Yates' Seeds are Remachined and Tested.

CLOVERS FOR PASTURES AND CROPS.

WHILE grass provides the main food for livestock, Clovers are the most important constituent of Australian improved pastures, because they are the great soil builders and food providers for the grass, besides being an important addition to the sustenance of the livestock. The basis of Australian soil improvement is Superphosphate, which acts mostly on the Clovers. The Clovers in turn put huge quantities of Nitrogen into the soil, which is the main stimulant for good grass. Once a good cover of Clover growth has been built up, a good true Permanent Pasture can be readily maintained by then introducing grasses and knowledgeable management.

SUBTERRANEAN CLOVER.

Subterranean Clover is undoubtedly one of the most important discoveries in Australian agriculture over the last decade, and probably it is doing more to bring prosperity to large areas of Australian agricultural country than any other single development which has come about in that time. It is an annual plant which starts its growth in the cool weather about March-April, and matures its seed from about October to December, according to the variety. Subterranean Clover has the remarkable ability of depositing its seed well into and under the surface soil, where the seed will lie through the summer until the next autumn rains; thus, once established, it will quickly spread over the country. Subterranean Clover will give a very high production during the growing period. In one trial in the Harden district this year it was estimated that the amount of green growth on a good paddock of Subterranean Clover amounted to 18 tons green fodder per acre, and when mature the growth "hays" off into a very nutritious dry fodder which will carry stock well until bleached out by heavy rains. In addition, the production of seed is very heavy, up to 8 cwt. or even $\frac{1}{2}$ ton per acre, and this is readily eaten, by sheep particularly, during the summer, providing an even better food than the natural trefoil burr.

Subterranean Clover has the ability of introducing a very large quantity of nitrogen into the soil. This, together with the humus formed by the heavy growth which dies off in the spring, builds up soil fertility in a remarkable way, and is one of the most important attributes of this Clover. Country which, in its natural state, is quite unable to carry the best grasses, such as Perennial Ryegrass, after three or four years of Subter-

anean Clover growth can be laid down into first-class Ryegrass pastures. There is one absolute necessity with Subterranean Clover—it will only thrive where there is plenty of quickly available phosphate, and the whole secret of the successful establishment and growth of Subterranean Clover is to top-dress the paddock with Superphosphate. On no account should Subterranean Clover be introduced without sowing Superphosphate with the seed, and to grow it successfully Superphosphate should be distributed over the land each year, or at least every two years. Under ordinary conditions, the rate recommended is about 1 cwt. per acre, but where production is high, 2 or 3 cwt. per acre per annum is a highly payable proposition.

By choosing the correct strains of Subterranean Clover this plant can be successfully grown on any country with a rainfall of not less than about 18–20 inches where the rains come in the winter and spring. In New South Wales it has been grown successfully in all districts as far north as a line running roughly due west of Newcastle, except the Western Division and the Western Riverina. On the Northern Tablelands it is being grown successfully in districts within the 30-inch rainfall belt and better, particularly where there is some altitude to give a long spring growth.

In all districts where the climate conforms or is better than that described above, Subterranean Clover should be introduced as widely as possible. In practically all circumstances, the successful introduction and wise management of Subterranean Clover, together with proper top-dressing with Superphosphate, can be relied on to at least double the carrying capacity of the natural pasturage; in many cases by careful management and the knowledge of just what to do, the



Subterranean Clover Hay, showing the enormous production obtainable.

If interested in Vegetable Market Growing, our latest publication, "Vegetable Market Crops," should be helpful.

carrying capacity can be made three or four times that of the natural pasturage. For pasture improvement, Subterranean Clover should be considered as the starting point on all country except the richest land in the high rainfall belt. Subterranean Clover is easily introduced as it will "take" if just sown over the natural pasturage with Superphosphate at the rate of 1-2 lbs. per acre, but this is a very slow method of establishment and should only be done where large areas are being put down and it is quite impossible to scratch up the surface of the soil. Any sort of surface scratching will amply repay in the quicker establishment of the Clover, but for quickest results the land should be heavily scarified and good seed sown at the rate of 2-3 lbs. per acre with not less than 1 cwt. per acre of Superphosphate. After the Clover has been introduced, regular top-dressing should be done, and soon, varying in time according to the original preparation, the land will quickly become covered with a heavy "mat" of Clover which will at least double the carrying capacity of the original pasture. After two or three years of heavy Subterranean Clover crops the soil surface will be so enriched in nitrogen and humus that the introduction of good nourishing grasses can then be undertaken. In the higher rainfall districts (see article on Grasses) Perennial Ryegrass, or some other more suitable grass, should be introduced by a thorough late summer cultivation which, if done carefully, will not affect the Subterranean Clover at all; in fact, it will improve it. The main thing to remember is to let the Subterranean Clover seed itself down before starting to cultivate and not to cultivate too deeply—in most cases one to two inches should be ample. If one of the Ryegrasses is sown in this manner it will make very heavy growth the first year, and may tend to keep the Subterranean Clover down, but this is due to the stored up nitrogen; and in the second year the pasture will start to settle down, and within about three years the paddock should be a really first-class pasture comprising 30-40% Clover, and the balance the best of grass. Under these conditions the stock-carrying capability of the paddock should be approaching its fullest capacity, and care should be taken to see that the paddock is not allowed to go back through lack of phosphates. While it is quite reasonable to consider about 1 cwt. per acre of Superphosphate per annum as a good dressing on land carrying about two sheep per acre, heavier dressings should be considered when the capacity of the paddocks gets up to three or four sheep, which should be quite possible under correct management, i.e., small paddocks, rotational grazing, etc.

There are now available a number of different types of Subterranean Clover, and it is most important that the correct one be selected, as they vary greatly in season of growth, amount of production, and suitability to climate, etc. It is only possible to grow Subterranean Clover in the lighter rainfall districts under 20 inches per annum, by picking the early flowering types, and in districts where the rainfall is high and the spring lasts into December, it is possible to plant varieties which will grow for a much longer period, and consequently give green feed for about a month longer than the earliest flowering types. These late maturing types are much leafier and give a higher production right through their growing period than the earlier maturing types, so that the farmer in a late district is losing a large amount of feed every year if he sows the early type, whereas a farmer in the lighter rainfall areas will probably have no success in establishing Subterranean Clover at all unless



Barley Grass coming up through a dense sward of Subterranean Clover. Perennial Ryegrass should be introduced under these conditions.

he picks the earlier type. We give below descriptions of the various types, and where our clients have any difficulty whatever in making a choice, we urge them to write us giving full particulars of their soil, climate, etc., so that we can help them. At the present time, we are able to offer three distinct strains:—

DWALGANUP EARLY MATURING W.A. TYPE—YATES' SPECIAL "EARLISTRAIN" GOVERNMENT CERTIFIED.—This is the earliest flowering strain in commerce, and is most suitable for districts of light rainfall and short season. We recommend its use in the Southern districts of Australia, i.e., approximately anywhere south of Sydney, where the average annual rainfall is less than 20-22 inches and the spring comes in early, and in the northern parts of N.S.W. where the average annual rainfall is somewhere between 20-30 inches, according to altitude and incidences of the rainfall. It is a rather sparse-leaved type with long runners. One point in its favour is that the percentage of fibre to leaf is rather higher than the later flowering types, and usually there is less trouble from bloat and diseases, such as Pulpary Kidney, etc. The strain we offer is seed certified by the West Australian Government to be of the correct type, and the truthness to type is carefully checked by us before sending out.

TRUE MID-SEASON MOUNT BARKER TYPE, YATES' No. 1 SUPER-GRADE MACHINE DRESSED AND TESTED.—This is the strain most largely used, and is suitable for all districts south of Sydney with an average annual rainfall of not less than 20-22 inches, and in the better rainfall areas of the Northern Highlands of New South Wales where the rainfall is not less than about 30 inches. It lies midway between the early strains and the late strains in regard to leafiness, has long runners which quickly spread over the ground, and for this reason this type would probably cover the ground quicker than any other. This variety will start into growth with the first good autumn rains, and will keep growing right through until about the end of November. The seed we offer is carefully machine dressed and tested, of highest quality and carefully examined to see that there is no admixture of other strains. This we are able to tell by the fact that practically all the different varieties have a characteristic colour, and our experts are able to identify very accurately the difference between seeds of the Dwalganup Early Maturing type and the True Mid-Season



Signs of high fertility. A beautiful Spring Pasture with a heavy growth of White Clover.

Mount Barker type. This is most important, as large quantities of mixed Dwalganup Early and Mid-Season Mount Barker type have been sold in the past as pure Mid-Season Mount Barker type Subterranean Clover, and which have been sown by farmers in good faith with consequent economic loss owing to the smaller leaf production of the early type and its quicker maturity. When comparing prices of Yates' Subterranean Clover with others, bear this in mind, and if buying Yates' Subterranean Clover, make sure that it is in Yates' metal sealed bags with our name on the seal.

TALLAROOK GOVERNMENT CERTIFIED LATE VICTORIAN TYPE FROM ORIGINAL PASTURES—

This variety matures about a fortnight later than the Mid-Season Mount Barker strain. It carries a higher proportion of leaf than the mid-season, and the runners are relatively short. It makes a very dense growth of exceptionally high fodder value, and will not mature until about middle December. It is suitable for districts with a late spring and under those conditions will give the paddock a higher carrying capacity than any of the earlier types. The seed we stock is certified as to strain by Victorian Department of Agriculture.

WHITE CLOVER.

(*Trifolium Repens*)

White Clover is one of the most important Clover species for the perennial pasture. The best perennial forms will thrive only under good conditions of rainfall and soil fertility, i.e., in the cooler climates with a 25-30-inch average annual rainfall or better on the heavier fertile soils. In combination with a good strain of Perennial Ryegrass the best Perennial White Clover forms the highest producing Perennial pasture known, and in the higher rainfall climates it should be the aim of anyone seeking the very best permanent pasture to establish a sward dominated by these two plants. The best forms of White Clover have a very long growing period, commencing with the first autumn rains and giving a continual growth of succulent green feed right through until the late spring round about November-December; in the coolest districts it will grow right into January. It will stand up to the strongest competition from other grasses and to any amount of stocking.

One of the main things with White Clover is to have soil of high fertility, and regular top-dressing

with Superphosphate is one of the best ways of ensuring this. In the higher rainfall districts one of the first improvements that shows up when top-dressing with Superphosphate is carried out is the increase in the amount of White Clover showing in the paddocks. As a nitrogen-producing plant, White Clover stands very high, and, provided a good stand of it can be established on a paddock, there is no difficulty whatever in growing the very best of grasses in combination. Heavy stocking suits White Clover, as the animal droppings and hoof cultivation all tend to increase the soil fertility and soil compaction which is so suitable for White Clover and Perennial Ryegrass.

White Clover grows spontaneously in most of the better rainfall districts of Australia, but the best New Zealand types are more perennial and give a longer season of growth into the summer than the natural strains in our pastures. When sowing down Perennial Ryegrass in any of the better rainfall districts the seed of the best New Zealand strains of White Clover should be included in the mixture.

The various strains of White Clover vary greatly in their perenniality, season of growth, time of flowering and amount of feed return over the growing period. The quickest growing and most annual type is European or White Dutch strain. Most of the plants in this strain are of the early flowering annual type, heavy seeding and quick growing. This strain has the advantage in that, being early flowering, it can take advantage of a rather short spring season to grow and seed itself down each year, but being an annual form, it takes good rains to start it off in the autumn or spring, and frequently, if the rain does not come just at the right time, it may not appear in any great amount for several seasons. Frequently a year is described as being a "good White Clover" year or a "bad White Clover" year. This is due to the fact that the annual types of White Clover must have rains in the late spring or early winter to shoot them away when in the late spring, round about October, the paddocks are covered with the white flowers; but if the rains do not come, the Clover hardly appears at all.

The best New Zealand strains are much more perennial in type, and the roots carry over from year to year. They are thus able to shoot away in the cool season with much less rain than the annual forms and get into quicker growth. The best New Zealand strains also grow much more vigorously with a much higher

percentage of leaf than the annual European strains, and therefore give a much larger percentage of feed, but undoubtedly the New Zealand strains will not thrive in as dry and as uncertain a rainfall as the annual forms, so that both have their place.

Being one of the most important Clovers for permanent pastures in New Zealand, the scientists there have been giving a great deal of attention to White Clover and are developing new strains which give a great deal more feed per annum than the ordinary true perennial strains. The bulk of these are still in the laboratory stage, but within the next year or two we anticipate that they will become available. For the high rainfall districts in Australia, i.e., on the Coast and Highlands where there is an average annual rainfall of 30-35 inches and better, these highly-developed forms should be of great importance. At the present time, we are able to offer the following strains:—

YATES' BEST NEW ZEALAND GOVERNMENT CERTIFIED PERMANENT PASTURE—This strain contains the best New Zealand types at present available, is very perennial in form, and the plant is a thick swarding leafy type, maturing very late in the season. It does not flower nearly so freely as the European type, but throws a much higher percentage of leaf. Wherever Perennial Ryegrass has been sown we recommend that at least some of this strain should be included in the mixture, even a light sowing will be of great advantage to the pasture. The strain is certified, too, by the New Zealand Department of Agriculture, and is sent out in our sealed bags.

YATES' "A.Y." NEW ZEALAND SUPERFINE—This is ordinary uncertified New Zealand White Clover, and generally contains a higher proportion of the perennial type than does the European or White Dutch, but we recommend growers to concentrate on the better certified strains, and if a proportion of the annual type is required, to buy the Government Certified New Zealand and European type seed separately, so that they will know just what proportion of each type they are getting. Generally it can be taken that this Superfine New Zealand type is rather more perennial than the European type.

CHOICE EUROPEAN WHITE DUTCH—This is the cheapest grade, and is the more annual type. We do not recommend this type to be sown in any of the better rainfall districts, but it is a wise provision to include some of this type in some of the drier districts where the summers are somewhat dry and long for the perennial forms to carry over. Broadly, we would not recommend this type for any climate with an average annual rainfall of about 30 inches or better, but in districts with a rainfall of rather less than this, it would be well worth while including a small proportion.

PERENNIAL RED CLOVER.

Red Clover is probably the heaviest growing Clover used in agriculture, with the possible exception of Berseem Clover. It is a rank-growing perennial plant which makes its main growth in the late spring and early summer under cool conditions, flowering about February. It works in well under Australian conditions, and its great value is now widely appreciated. In the cooler Southern districts it is most largely used as a crop of cultivation or for temporary pastures on cultivation land frequently in conjunction with Italian Ryegrass. A combination of these two will give an enormous winter and spring feed, and if necessary a

wonderful crop of meadow hay. The pasture will last two years, and in that period will make a vast improvement in the condition and fertility of the soil, which will show up to great advantage when ploughed up and sown to some crop. In the cooler Coastal districts this combination should be widely used for the "spelling" of the cultivation paddocks, particularly corn land, as it will renew the humus and nitrogen content of the soil and give that necessary rest period to clear out the many soil-borne diseases of the different crops, such as Root Rot in corn, etc.

Red Clover is also largely sown in pasture mixtures; it is particularly suitable for the deeper soils where Cocksfoot is likely to predominate, as it is much more suitable for deep free soils than White Clover. Under pastoral conditions it is reasonably permanent and will last at least three or four years with odd plants showing up for a number of years after. Sowing it in a permanent pasture is very good practice, as it makes a good nurse crop for the slower-growing Perennial grasses, and at the same time helps to build up the necessary nitrogen content of the soil to enable them to thrive. In the Northern parts of New South Wales, Red Clover stands out as an excellent fodder plant, as it is able to take advantage of the late spring and early summer rains which usually come round about November-December. In the Tablelands districts this ensures quick summer and autumn feed. On the warmer Coastal areas, Red Clover is largely sown early in the year round about February-March; with the normal summer rains the Clover gets a good start, and will keep growing right through the autumn and winter. If decent spring rains are received, it will keep on growing right into the warm weather, and is proving one of the most important winter and spring feed crops for those localities.

When using Red Clover alone as an annual crop or temporary pasture, it should be sown at the rate of about 10 lbs. per acre. If Italian Ryegrass is used, sow about 3-5 lbs. Red Clover and 15-17 lbs. Italian Ryegrass per acre. In permanent pasture mixtures from 1-3 lbs. should be included in practically all pasture mixtures, particularly in the Northern districts in the better rainfall areas.

Like most of the Perennial Clovers, the different strains of Red Clover vary a good deal in type and perennality. The outstanding strain in perennality,



Production from Plot Tests is ascertained by regular mowing and weighing the clippings.

Remember—Yates' Seeds are Remachined and Tested.

growth, long growing period, etc., is the New Zealand strain: so outstanding is its superiority that usually we do not keep the European type. Occasionally, when European seed is very much cheaper, we carry small stocks, which are available for customers, but we can seldom recommend it, as it is only of advantage where the Clover is being planted strictly as a one-year crop. Even then it does not give the same amount, or long season, of growth as the New Zealand strain.

The cheaper European strains of Red Clover vary a good deal amongst themselves. The types which are saved in the far-north of Europe, notably the most northerly districts of France, Poland, and in England, are reasonably good as to perennality and season of growth, but the types saved in southern France and Italy are mostly grown as a green manuring crop in orchards and vineyards, etc., and are the very quick-flowering, early-maturing annual forms, quite useless for fodder purposes as compared with the New Zealand type. When purchasing seed from Europe it is frequently difficult to be sure that the best Northern types are being sent. Having our own associated house in England, we are able to go right into the seed-saving districts, and are reasonably certain of getting seed saved in those localities; but when merchants buy seed second-hand from European exporters, it is almost impossible to tell.

The strain we recommend is **YATES' SELECTED NEW ZEALAND COWGRASS**. This is purchased by us direct from the seed-saving localities in New Zealand, and is by far the best and most superior type of Red Clover available for Australian conditions. It has a long season of growth, is very perennial in form, and has a thick, leafy habit of growth, which gives a large body of feed.

During the last few years a new type has been developed and is now being saved in New Zealand under the name of **MONTGOMERY LATE FLOWERING TYPE**. This is quite an important type in New Zealand, and Government Certified seed is now available. It is an even later flowering type than the ordinary New Zealand Perennial Red Clover, which means that it will carry on even further into the summer. If anything, Montgomery Late Flowering Red Clover is more perennial than the Selected New Zealand Cowgrass, and we consider that it has quite a place in permanent pasture, particularly for the Northern Tablelands of New South Wales.

ENGLISH YELLOW TREFOIL (or Black Medic).

(*Medicago Lupulina*)

A free seeding perennial clover, which in practice, usually dies out each year and comes away from seed. It has proved a very strong, vigorous clover on the Northern Tablelands and North Coast of New South Wales, and is recommended for those districts and others with similar climates, particularly for second class land. English Trefoil does not give the amount of growth of White Clover or Red Clover, but is much harder on second class country and should be included in mixtures for that type of soil.

BURR or "NATIVE" TREFOIL.

(*Medicago Denticulata*)

This is now one of the commonest plants in the inland grazing areas of N.S.W., and furnishes a tremendous amount of feed. It grows with the first good



White Clover at South Grafton obtained by building up soil fertility with regular top dressing.

autumn rains, giving a heavy yield of lush green fodder throughout the winter and spring. With the approach of summer the plant ripens off and the seed falling on the ground, then forms a most valuable and highly concentrated food. This the sheep will lick up from the ground and thrive on. Country that grows this Trefoil is essentially fattening country. The burrs are a great disadvantage in purely wool-growing country.

ALSYKE CLOVER.

(*Trifolium Hybridum*)

In Europe, Alsike Clover is one of the most important plant constituents in low, damp meadows. It combines to a great extent the qualities of both Red and White Clover, being very perennial, upright growing, giving a big body of feed in the late spring. Generally, Australian conditions are too dry for the general use of this clover, but it has its use in rather low, damp situations in the highest rainfall areas. We recommend its inclusion in pastures in rather poorly drained situations on the South Coast of New South Wales and the high rainfall areas of Victoria and the Southern States, particularly where the soil itself is fertile.

SUCKLING CLOVER.

(*Trifolium Minus*)

Probably one of the commonest quick-growing annual Trefoils. It grows close to the ground, giving good bottom feed in the early spring and is valuable for land which does not naturally grow White Clover. It seems adapted to poorer soils and slightly drier climates than would suit White Clover, and its very heavy seeding habit ensures continuance once it is introduced in suitable soils.

CLUSTER CLOVER.

(*Trifolium Glomeratum*)

An annual something like Burr Clover, but thrives in rather lighter soils. It grows on hills where Burr Clover is often confined to the flats. It has no injurious burr and therefore is excellent for sheep country. It is easily introduced by scattering seed over the land when it is not too hard.

Yates' Current Price List contains Pasture Grasses, Clovers, Fodder Crops, etc. — Send for one.

LOTUS (Varieties).

Lotus varieties are of great value to agriculture in that they are leguminous plants and have the ability to introduce nitrogen into the soil and generally will grow under conditions unsuitable for the true clovers. In commerce there are three main varieties.

LOTUS MAJOR (Greater Birdsfoot Trefoil) — A perennial which does best in damp soil and grows mainly in the cooler months. Lotus Major is largely used in New Zealand for breaking in new land, particularly where the country is inclined to be sour and badly drained. It is particularly recommended for these situations in the higher rainfall areas and cooler districts of Australia where it will give a large body of succulent feed and at the same time, will go a long way towards encouraging the growth of grass by putting nitrogen into the soil. In suitable situations Lotus Major is very hardy, vigorous, and once introduced will quickly increase and spread. Lotus Major is particularly valuable in swamp country as the plant will grow right into the water and will stand a considerable amount of inundation. In the cooler districts where the rather ill-drained land is frequently covered by coarse rushes, tussocks, etc., the planting of Lotus Major is of great help in controlling and eliminating these rough plants as the vigorous growth of the Lotus Major helps to smother the tussocks, etc., and encourages stock tramping, while at the same time building up the soil fertility and encouraging the growth of the better grasses.

LOTUS CORNICULATUS (Birdsfoot Trefoil) — This is a perennial member of the Lotus family which makes its growth in the warmer weather and is of considerable value in the more northerly parts of Australia

where it can take advantage of the mid-summer rains. It is a very hardy, drought-resistant pasture plant, and is well worthy of inclusion in all grass mixtures for the northern parts of New South Wales and in Queensland where ordinary clovers are very difficult to establish owing to the dry springs.

LOTUS ANGUSTISSIMUS (Narrow-leaved Lotus)

—A hardy annual clover most suitable for planting in rough, second class country in the cooler, high rainfall areas, particularly valuable for including in mixtures for sowing on "burns" and newly cleared land.

BURRLESS or BUTTON TREFOIL.

(*Medicago Orbicularis*)

This is a variety of Trefoil Clover which has attracted attention in Tamworth and other northern districts. It is very similar in its growth and appearance to our Native Trefoil or Burr Clover, but the seed is not enclosed in a burr, but in a smooth pod like a small snail's shell. However, the plant is not as hardy or as prolific as the well-known Burr Clover. It is an annual, but seeds itself so profusely that it comes up every spring, and is permanent when once introduced in suitable districts.

TRIFOLIUM CERNUUM.

(*Drooping Flowered or Gingin Clover*)

This is an annual Clover which seeds itself down, so that once introduced it is permanent. It makes heavy growth in the autumn and winter months, and is particularly suitable for moist or even wet soils in cool climates. It will withstand a large amount of inundation during the winter months. In drier soils it is not so successful.

BERSEEM CLOVER.

(*Trifolium Alexandrinum*)

An annual lucerne-like plant which makes its growth in the cooler part of the year. If planted early, i.e., about February, on deep rich alluvial soil, Berseem Clover grows very vigorously and up to four or five cuts of beautiful lucerne-like hay of very good quality can be got before the plants die off in the late spring. Berseem Clover originated in the Nile Valley of Egypt where it is sown in the rich Delta soils after the annual flood has receded. It is one of the most important crops there as it is used both for stock feed, hay, and as a rotational soil improving crop for cotton and grain. In New South Wales, Berseem Clover has proved of great importance on the deep rich alluvial soils of the Hunter River in and around West Maitland, and under similar conditions in mild climates it is well worth a trial as a winter green fodder crop for dairymen and as a hay crop for fodder storage. An Australian crop of Berseem Clover Seed is most uncertain and unfortunately, it seems impossible to import Berseem Clover free of Hexham Scent (*Melilotus Indica*). To the dairyman this is important as Hexham Scent is liable to taint milk and cream. When importation is necessary we take the greatest care regarding Hexham Scent, and all samples are submitted to the Department of Agriculture for purity test to see that they are free of this troublesome weed. The usual sowing is 8-12 lbs. per acre on a well-prepared seed bed, and it is most important to see the crop is planted early, by the middle of March at the very latest, otherwise it does not establish itself before the cold weather comes on.



Berseem Clover. A wonderful producer on heavy river country.

For Prices of Yates' Pasture Seed, write for Current Price List.

BOKHARA CLOVER (or White Sweet Clover).

(*Melilotus Alba*)

A biennial, extremely useful for renovating and green manuring. The plant makes very big root growth, and when it dies out after the second year it rots down very quickly, leaving the soil well opened up.

Bokhara can be grazed by all classes of stock, the fodder value, by analysis, being extremely high. There is practically no danger of bloat with this Clover, but it is likely to taint milk. It is an excellent honey plant.

If used as a rotation crop it can be ploughed in either the first or second year, according to circumstances. The main seeding takes place the second year, and there is little danger of the plant getting out of control.

This plant should not be grown in wheat paddocks, as the seed will taint flour. Sow 8 lbs. to 10 lbs. per acre broadcast, or 5 lbs. in drills.

TRIFOLIUM INCARNATUM.

(or Crimson Clover)

An annual clover, useful as a rotation crop or for hay. It is a very quick grower and a great soil renovator. The root system is particularly efficient in producing nitrogen bacteria and therefore should be useful as a soil improver in orchards in cool highland districts. Stock do not eat it readily when green, owing to its hairiness. A splendid variety for clover hay in cold districts. Sow 10 to 12 lbs. per acre in autumn.

LESPEDEZAS.

The Lespedezas are summer-growing leguminous plants which have created great interest and have become very popular in the southern districts of the U.S.A. Owing to their summer growth they have been tried out and are now proving of great interest for the summer rainfall areas of Australia, i.e., Queensland and in the far north of New South Wales, where the main rains occur from October–November through to May–June. In these areas the ordinary clovers are

very difficult to establish, and make only poor growth, consequently it is very difficult to obtain a suitably balanced pasture with the right amount of leguminous plants in the sward. In good years, annual forms of White Clover appear, but frequently, owing to the dry spring weather, it is hardly seen. For these conditions, the Lespedezas promise to be of great value, and are well worthy of inclusion in any pasture mixture laid down. There are two varieties available, the annual Lespedeza Striata and the perennial form, Lespedeza Sericea.

For sowing in pastures the most important is the **LESPEDEZA STRIATA**, as, although being an annual, it makes quick growth and seeds itself down each autumn in much the same way as the annual clovers do, reappearing each summer with the first good rains; it is palatable, of good feed value, makes fairly strong growth, and has a great aptitude for introducing nitrogen into the soil and so improving the quality of the grass produced in the mixture. In trial plantings on the North Coast of New South Wales it has proved extremely promising on second-class country, particularly where Carpet Grass is taking the place of the better *Paspalum Dilatatum*. Top-dressing the pasture with Superphosphate and the introduction of Lespedeza Striata holds out great promise in the control of Carpet Grass on second-class country.

LESPEDEZA SERICEA—A hardy, deep-rooted perennial which makes its growth during the summer. If allowed to grow to maturity the plants become very hard and woody; at the same time, provided it is cut before the plants mature too much, it makes very good hay and is now being largely used in the U.S.A. for this purpose. In a good season two or three good cuts of hay can be gathered in the one season. In Australian agriculture so far this plant has not been found of very great use, at the same time it holds out promise as a perennial crop in situations where it is impossible to grow Lucerne, and is well worthy of trial.

TOWNSVILLE WILD LUCERNE.

(*Stylosanthes Mucronata*)

In the drier parts of Northern Queensland this plant provides leguminous feed. It ripens off and seeds as the rainless winter months advance. We are able to offer limited quantities of freshly saved seed.



A beautiful stand of Lucerne in the Monaro District of New South Wales.

If interested in Vegetable Market Growing, our latest publication, "Vegetable Market Crops," should be helpful.

LUCERNE.

Some Notes on its Treatment as a Grazing Crop, with Special Reference to Wheat Lands on the Slopes and in the Riverina.

For Fuller Particulars on the value of Lucerne and its Cultivation, write for Yates' Lucerne Booklet, post free.

ONE of the most important crops for cutting and grazing. Costs of preparing land for sowing Lucerne are fairly high. Only the **cleanest** seed of **extra high percentage quick germination** should be sown, and the strain should be most **vigorous** and **drought-resistant**. We have a name which is unsurpassed for all the above qualities, and our advice is **always promptly available**.

NO NECESSITY FOR HEAVY SOWINGS.

There is no advantage in sowing Lucerne more thickly than the quality of the land warrants. In the best alluvial land 10 lbs. per acre is ample and as little as 2 lbs. per acre makes a satisfactory sowing for pasture purposes where a combination of grass and lucerne is required.

SOWING THE SEED.

The seed being small, should be only lightly covered with soil (about $\frac{1}{2}$ -in.); if buried more than one inch the percentage of germination is noticeably reduced. The best quality re-machined seed only should be used, and the land should be well prepared, fallowed, and after sowing, well firmed, so that the seed will make good contact with the soil.

The usual method adopted in sowing seed on large areas is to use the wheat drill or the "combine," while on small areas a hand broadcasting machine is operated or the seed is scattered by hand.

When lucerne seed is mixed with superphosphate and sown through the fertilizer box of a grain drill, care must be taken not to sow too deeply. Often it is an advantage to pull the distributing tubes out of the "feet" of the drill, allowing the seed and fertilizer to drop on the surface of the ground. A brush harrow, such as a strip of wire netting suitably weighted, will give sufficient cover. When the soil has a loose, dry top with a firm, moist bed just underneath, it is often an advantage to sow through the "feet" of the machine just on the moist soil.

When seed and superphosphate mixed are being sown, only a small quantity of the mixture should be put in the fertilizer box at a time, as this ensures a more even distribution of the seed over the area to be planted.

On friable, self-mulching soil, lucerne is being established satisfactorily for pasture purposes by broadcasting the seed per medium of top-dressing machines, harrows following to give effective covering, or sheep may be used to lightly tramp the seed into the ground. In some cases the land is given a shallow cultivation prior to seeding.

Autumn sowing is generally to be recommended, as the plants have a chance of becoming well established in the cool seasons, but there are many factors which have to be taken into account, such as the period of greatest weed growth, severity of winter frosts, etc., and spring sowings are therefore often very successful.

FEEDING-OFF LUCERNE STANDS.

Tests have shown that lucerne should be allowed to reach full bloom before cutting or feeding-off at least once or twice a year. Where sheep are continuously grazing on a paddock of lucerne for lengthy periods, the young shoots are severely eaten back,

the crowns become damaged, and the vitality of the plant is considerably impaired. In paddocks that are grazed the surface soil sets hard with tramping and cultivation should be carried out at least twice a year.

It is advisable to have reasonably small paddocks, and put large numbers of sheep on at a time to eat the area off in at least ten or twelve days. If the paddocks are large, temporary fences that can be erected rapidly and moved easily should be utilised for sub-division purposes.

Top-dressings of 1-1 $\frac{1}{2}$ cwt. superphosphate per acre should be made at least every second year. The fertilizer should be applied in July or August, working it in with a cultivator or heavy tripod grass harrow.

The carrying capacity of well-managed grazing areas of Lucerne is remarkable. By the judicious use of light sowings of Wimmera Ryegrass with the Lucerne, heavy winter and summer grazing is available.

CEREALS OR WIMMERA RYEGRASS FOR WINTER FEED ON THIN LUCERNE STANDS.

Where Lucerne stands have been utilised for grazing for a number of years and are thinning out, an autumn sowing of 20 lbs. of wheat or 30 lbs. of oats per acre on easily-worked land, will provide a considerable quantity of winter grazing during the cereal crop's period of growth of five or six months, or an over-sowing of 3 to 5 lbs. of Wimmera Ryegrass seed per acre may be made in the autumn. Great success has been gained by sowing from one to two pounds of Lucerne seed (taking care not to sow too deeply) with a crop of Wheat or Oats. It would be wise when



Lucerne showing wonderful production; from 4 to 6 cuts a year are obtainable.

Shall we send Yates' Current Price List? — Post free on application.

doing this to reduce the amount of seed of Oats or Wheat below the usual to allow the Lucerne stands to have a better chance. This practice is most successful in districts where late spring or early summer rains may be experienced.

LUCERNE IN GRASS MIXTURES.

A little Lucerne is worth including in all pasture mixtures for sowing on reasonably deep and fertile soils, whether hill or dale. The deep roots of this legume ensure green feed in summer, when most of the grasses will be dormant.

Lucerne and Wimmera Ryegrass make a splendid mixture to provide all-the-year-round grazing in dry hot climates, provided sufficient autumn and winter rains fall to start the Wimmera early and ensure growth throughout the winter and spring.

Seed Supply—For over thirty years we have been handling Lucerne seed in large quantities, and it follows naturally that we have gained a wealth of experience.

**YATES' BROADLEAF
AY
QUART-UPRIGHT LUCERNE**

In sealed bags, is re-machined and tested seed of extra prime quality of a superior type of N.S.W. grown Lucerne, which is saved on selected farms in those districts in which, owing to special natural conditions, there has been evolved a long-standing drought-resisting strain, which has proved itself for Australian conditions. We specially treat samples of Lucerne seed containing "hard seeds," thus ensuring a very high percentage quick germination which is important, helping the newly sown crop to overcome the weeds which so quickly come in a newly-sown area. Supplied in 25 lbs. and 50 lbs. net SEALED bags.

SEED GRAINS.

IN Australia, like all large continents, the climate is so variable that large scale green cropping for supplementary stock feeding and fodder reserves is essential. All farms being intensively worked must have adequate storage of fodders. A wise choice of grain crops will enable the most suitable and economical fodders to be grown for various situations and purposes.

For mid-winter green feed and for topping off lambs, etc., in the Spring, an adequate area of green crop is most valuable. Most grain crops are soil exhausters, but if one of the leguminous crops can be included soil improvement will take place and the quality of the feed grown built up.

YATES' RE-MACHINED SEED GRAINS comprise the varieties of sorts mostly used for green cropping. Being heavily cleaned there are no straws, pinched grain or weed seeds, so less seed need be used per acre and an even "strike" is assured.

SEED OATS.

Oats are undoubtedly the outstanding annual green fodder winter grazing crop for the cooler districts of Australia. The correct varieties of Oats will give longer and more continuous grazing than any other grain crop. For best results Oats should be grown in

three or four small paddocks rather than one large paddock, so that the stock can be crowded on and the crop eaten down quickly. In this way each paddock can be given reasonable time to recover and make fresh growth. Continual grazing without spelling is wasteful and not good for either the crop or the stock. In practically all conditions some fertilizer should be sown with the crop, as a general rule about 1 cwt. per acre Superphosphate should be used. If a proportion of Field Peas, Vetches or Red Clover, according to climate and situation be planted with the Oats, stock will get a more balanced diet and will do better and soil fertility will be kept up; where Red Clover is used the late spring and early summer grazing will be increased and good stubble feed can be expected during the following autumn.

The importance of sowing good seed for crops of green fodder as well as grain is now beyond question. The main cost of an annual crop is the cost of cultivating the land, and every endeavour must be made to get the most out of the area sown; ten acres of really good crop is better than twice the area giving only an indifferent yield. To do this, sow only prime plump re-graded samples, which should mean that only prime plump seeds are sown, and, owing to the absence of straws, etc., the seed goes evenly through the drill, and a correct stand is established all over the paddock. A bad seeding means areas all over the paddock not producing anything.

The different varieties of Oats vary so much in their type of growth, ability to stand up to feeding off, and requirements of climate, etc., that it is very necessary to sow the correct variety for different conditions and requirements, and one of the most important things is to purchase Oats true to name. While



Harvesting a Paddock of Well-grown Seed Oats.

Yates' Current Price List contains Pasture Grasses, Clovers, Fodder Crops, etc. — Send for one.



Experimental Plots of Remachined Oats on our Trial Grounds.

naturally our Seed Oats, like all seeds, are sold under our non-warranty, we are very careful to keep the different varieties true to type and description, and farmers know just what they are getting. Yates' "A.Y." Re-machined Oats are the "very pick" of the lines available, and where necessary varieties are specially grown on contract to ensure trueness to the name and type. A lot of trouble has been caused through this difficulty in the past, and we are continually seeing samples of Oats wrongly named, and many failures are due to this trouble. The utmost care is taken by us in this respect, and all purchases are carefully checked by comparative trials in our extensive trial grounds. All samples are carefully cleaned and re-graded with our own machinery, so that every grain should produce a strong, well-nourished plant. With these samples less seed need be sown per acre.

Choice of variety to be used is largely governed by the districts, time of sowing and the use to which the crop is being put. The following list, in our opinion, contains all the good varieties suitable for grazing and cropping under different circumstances:—

ALGERIAN—The standard maincrop variety for grazing, hay and grain. Is very hardy, a good drought resister, and stands up exceptionally well under constant grazing. If planted early—provided it is fed down quickly and allowed to recover—it will give continuous green feed right through the late autumn, winter and spring, and in many cases will give fair yields of hay or grain. In all grazing trials this variety is generally the one used for comparative tests of new sorts. If allowed to grow tall it is rather subject to rust in coastal districts. We stock two grades of this variety—Yates' "A.Y." Extra Prime for those requiring the highest quality, and No. 2 Good Re-graded for those who want a good sample but at competitive rates.

BUDDAH—An early rust-resistant variety which is very popular in New South Wales Coastal areas as a grazing proposition. While early maturing, it stands grazing off very well indeed, on comparative trials coming very close to Algerian in this respect. It is one of the best white varieties for grain, and constantly out-yields Mulga and Sunrise in the main grain-growing districts. Our stocks of this variety are all specially grown for seed purposes.

SUNRISE—A very early, strong-growing variety, moderate stooling, with very coarse straw, but extremely palatable. Sunrise does very well on the Coast, as it is very rust-resistant, but it only stands

up moderately well to heavy grazing, and will not recover like Algerian and Buddah. It is an excellent variety for hay in the Coastal Districts.

MULGA—An early, quick-growing, white-grained variety with a fine straw and stools well. While it does quite well on the Coast and Tablelands, it is very susceptible to rust and will not recover very well after heavy grazing. In our opinion, Buddah, when available, is definitely superior for all purposes.

BELAR—A medium early variety principally used for hay and grain and will do well in districts where the season is rather too short for Algerian; does only moderately well on the Coast and is not much used there, but inland it has been found to stand up to grazing very well.

WHITE TARTARIAN—A variety very popular in the colder districts, where it is largely used for spring planting and does better under cold conditions; it is not recommended for the warmer districts. In suitable situations it is an excellent general purpose variety.

FULGHUM—A variety recently introduced from America which is showing out exceptionally well in grazing trials on the Lower Tablelands and Western Slopes. In many cases under these conditions it has out-yielded Algerian, but for coastal conditions it seems very subject to rust and lodging and is not recommended.

IDEAL or WAIKARE—A medium early variety which stands up to heavy grazing and makes a great recovery. It is very palatable and has been quite successful on the Coast.

HEAVY WHITE—A late maturing variety only suitable for late cold districts with a good rainfall.

BARLEYS.

Barley is the earliest of the grain crops to mature, and in this earliness lies also its great value as a green fodder crop. It is one of the sweetest fodders grown, and is relished by all classes of stock. Sow about two bushels per acre.

WHITE SKINLESS—The earliest variety, and very valuable for its quick growth. It affords two cuttings, and should be grazed after each; the close feeding seems to cause it to come away with renewed vigour.

CAPE—This is the variety most generally used for green fodder. It grows quickly, stools very well, and gives large bulk of feed; a five-row bearded type.

ENGLISH—Mostly used for grain for malting.



Oats for Grazing. A wonderful Winter stand-by.

WHEAT.

Prime, Heavily Re-cleaned Samples.
For Green Feed Growing.

Wheat is largely used for green fodder and for hay, as well as being the world's most important grain crop. It stands dry conditions better than almost any other grain, and is therefore of great value for fodder and for hay. It will often give good crops in seasons when oats are a failure. The only variety we stock in quantity is **Florence**, which is of outstanding suitability for growing in Coastal Districts for green feed and hay. **Florence** wheat is unique for special purposes and supplies are not plentiful.

Sow up to 2 bushels per acre, together with a dressing of 56 lbs. to 112 lbs. Superphosphate per acre, according to location and quality of the land. The addition of a few pounds of Field Peas or Vetches is an advantage.

RYE CORN.

Rye Corn is very hardy and most suitable for poor soils, and is largely used for winter feed, especially where the climate is severe, as it grows better in very cold weather than any other cereal. It is excellent for grazing. Stock do best while the Rye Corn is young, so it should be kept well fed down.

It will stand grazing all the winter, and rapidly grows again after being eaten down. It is also used for mixing with Tares, the Rye Corn serving to hold the Tares off the ground. Rye Corn comes into use very early. Does well on sour land even in warm climates. It is also sown to advantage mixed with Rape. The straw is very valuable for thatching, and some farmers sow the headlands of their hay paddocks with Rye Corn for thatching the stacks. Sow about two bushels to the acre.

BLACK WINTER RYE—The best sort for early winter feed, strongly recommended for all grazing and stock feeding purposes.

LEGUMES FOR FODDER CROPS OR GREEN MANURING.

UNDER the term Legumes are included all clovers, lucerne, etc., and the list of varieties listed here—under are grown alone or in association with cereals (wheat, barley, oats, rye, corn, etc.), for fodder purposes or for cover crops to be ploughed under as Green Manuring. The different varieties vary considerably in adaptability to different soils and climates. If you are in doubt which are best for your purposes write to Yates! You must have the seed clean and of strong germination, and you must have the right variety and strain. Yates' lines are all carefully selected and thoroughly cleaned and tested.

FIELD PEAS.

Field Peas are a very easily grown crop on fair class cultivation soils in temperate climates—loams and clay loams of an open nature are best. They are best sown in the autumn or early spring.

Peas are very quick growers, and give a good bulk for fodder or for green manuring. When grown for fodder they are best used in conjunction with a cereal such as wheat, oats, or barley—say $1\frac{1}{2}$ bus. of the cereal to $\frac{1}{2}$ bus. of Field Peas. Stock sometimes avoid Peas when they are green until they get used to them, but they always eat them readily when well wilted or made into hay.

Field Peas are very largely grown for green manuring, and may be sown in drills or broadcasted at from $1\frac{1}{2}$ bus. to 2 bus. per acre. If they are sown early they make wonderful growth throughout the winter, and may be ploughed under in the spring, just as the pods are setting. Frost in the winter will kill the flower and pods, but will not prevent the vines growing.

Peas are among the best of the soil improvers; even if the roots only are ploughed under the soil is greatly enriched. A favourite method of growing Field Peas for fodder and soil enriching on coastal farms is to sow the Field Peas between the rows of late maize just prior to the last cultivation. When the maize ripens the drying leaves allow ingress of light and air, and rapid growth is made. After feeding off, the roots and top growth which has been trodden down are ploughed, and help to maintain the soil fertility for the following maize crop.

Field Peas, though not so hardy as Tares or Vetches, are earlier maturing, usually cheaper in price, and one grower reports that when grown with a cereal it will stand the trampling of grazing cattle better than will Golden Tares under similar conditions. Field

Peas can be sown in the autumn or spring, but in mild districts we prefer autumn sowing.

Sown alone $1\frac{1}{2}$ to 2 bushels per acre broadcast, or, say, 1 bushel in drills 2 feet apart. Sown with cereal crop, try $\frac{1}{2}$ bushel Field Peas with $1\frac{1}{2}$ bushels oats or wheat per acre.

Care should be taken to sow the seed deeply enough (2-3 inches in normal soils). Superphosphate should be applied to ensure heavy yields.



Purple Vetch. Growth made by one plant.

For Prices of Yates' Pasture Seed, write for Current Price List.

GREY OR PARTRIDGE FIELD PEAS—This produces probably the heaviest amount of green stuff of all the Field Peas, and is exceptionally hardy. For green manuring or for fodder purposes in most districts it is the variety to use.

DUN FIELD PEAS—This is slightly earlier maturing than the Grey, and where Peas are grown for the grain as a rotation in wheat farming, this variety will probably be most suitable. It will ripen its seed under warmer and shorter seasoned conditions than the Grey, and is a very heavy yielder.

BLUE FIELD PEAS—This Pea is grown in very cold districts only, mainly for the grain, which is sold on the produce market as “boilers.”

TARES and VETCHES.

Used for winter green feed and spring hay in combination with Oats or Rye Corn. They are much harder than Field Peas as regards severe winters and poor soils, but do not make so much bulk. The **Golden Tare** is the variety which has been mostly used. The **Purple Vetch** (*Vicia atropurpurea*) has been coming well into favour in recent years. This variety is really outstanding. It may be grazed or cut again and again with the other winter green feed with which it is sown, and recovers well. Of a trailing habit and vigorous growth, quite a light seeding of this Vetch will give good results. The seeds are much smaller than the Golden Tare, and will therefore sow more land weight for weight. A most valuable sort for green manuring.

Vetches are wonderful soil improvers. We strongly recommend a trial of the Purple Vetches for providing well-balanced green fodder with Oats, Rye Corn, Barley, etc., etc., or for green manuring. Sown alone, use about 30 lbs. per acre or about 15 lbs. with 1½ bushels to 2 bushels per acre of other grain. Superphosphate should always be added if there is any lack of fertility in the land. If using the Golden Tare, about 30 lbs. with a bushel of grain or up to 2 bushels sown alone should suffice.

HORSE or TICK BEANS.

A variety of Broad Beans, the seeds of which form excellent feed for horses; but their main usefulness is as a winter green-manuring crop. Sow about 2 bushels per acre if broadcast, or, say, 1 bushel in drills. Our lines are all heavily machine dressed and tested, and less need be sown per acre compared to inferior samples.



A Trial Plot of Dwarf Essex Sowing Rape.

NEW ZEALAND BLUE LUPINS.

Annuals which for green manuring provide one of the best crops for ploughing in, especially in our cooler districts. They are not suitable for green feed for animals. When practicable we recommend autumn sowing, but they will succeed if sown in early spring. Lupins grow very rapidly and produce a quantity of top. Sow at the rate of 2 bushels per acre. For small trials 3 lbs. will sow an area of 100 square yards (10 yards x 10 yards). Supplies are scarce.

SOWING RAPE.

YATES' "A.Y." BROAD-LEAVED DWARF ESSEX.

Sowing Rape is one of the most profitable stock fodders for fattening. In addition, it is a very useful rotation crop and soil renovator on account of its vigorous deep-rooting habit, which penetrates subsoils to a considerable depth. It is one of the best annual fodder plants for sheep in the better rainfall parts of Australia, and with the widespread recognition of the value of combining sheep and wheat, it is now becoming very important on the wheat farm, not only for sheep feed, but also as a rotation crop for renovating wheat land. The roots of the Rape tend to break up and enliven the soil just below plough depth, and this greatly renovates the paddock. Rape is equally good for sheep, pigs or cattle, so long as it is not given in quantity to milking cows, as it is apt to taint the milk.

Sheep put on to Rape fatten very quickly; even old, broken-mouthed ewes that would starve on an ordinary pasture very soon put on flesh and are fit for the butcher. They should, however, be sent to market as soon as they are “topped off,” as, if put back on the grass, they very soon lose condition again. As a means of fattening lambs, especially weaners, for market, there is nothing to equal Rape.

Rape should be eaten off heavily and “spelled”; the plants then soon recover and give a second or third crop almost as good as the first; in fact, if sown in the early autumn it should give several months’ feed.

Poultry farmers are finding a small patch of Rape a valuable asset, and for this purpose small successive sowings should be made through the autumn and again in the spring.

Some growers prefer to sow it with Rye Corn, say, half bushel of Rye and 2 lbs. of Rape; others sow it with mustard, using ½ lb. with 4 lbs. of Rape per acre. The inclusion of mustard corrects the occasional tendency of Rape to scour. Italian Rye Grass, about 6 lbs. per acre, does exceptionally well with Rape.

We recommend sowing in February, March or April, after the good autumn rains, but as early as possible after the middle of February. It can also be sown with advantage in early spring, especially in the cooler districts, as it is extremely hardy. Work the land well and fine the surface. Sow seeds at from 3–6 lbs. per acre. A good method is to mix with fertiliser and sow through manure box of drill. Care should be taken to sow the seed very shallow.

SUMMER GROWING LEGUMES.

Such as Cow Peas, Soy Beans, Velvet Beans, etc., are listed in our Spring Farm List, available later.

Remember—Yates' Seeds are Remachined and Tested.

SUNDRY FODDER CROPS

FOR AUTUMN PLANTING.

CABBAGE, CATTLE—In cool climates the very large late varieties have a value as cattle feed. Sow in late summer and autumn in seed bed, and afterwards transplant. Sow about $\frac{1}{2}$ lb. for each acre to be planted out.

CHOU MOELLIER or MARROW KALE—Variety of Kale. Of extremely vigorous growth and yields enormously. The leaves should be cut, not pulled off the stem, and fresh growths are then formed immediately. Sow in early autumn, 2 lbs. to the acre, if drilled, or 1 lb. is sufficient if transplanted; the drills should be two feet apart, allowing 12 to 14 inches between the plants. Trial packets, 6d.

THOUSAND-HEADED KALE—Few plants will give so great a quantity of feed per acre as Thousand-Headed Kale, and all animals eat it greedily. These should all be sown in a seed bed, and afterwards transplanted 2½ feet between the plants and 3 feet between the rows. For the best results sow in summer or early autumn. Trial packets, 6d.

MUSTARD—For a quick green fodder and corrective for fattening lambs, Mustard can be recommended. It is usually used mixed with Rape. It is ready a few weeks after sowing, and is often used as a quick green cover crop.

SWEDE TURNIPS—Swedes can be grown cheaply and with comparative ease on much of the upland country of New South Wales, not only for stock, but for the vegetable market. For sheep, they make an excellent fodder, especially as they become available during the winter and early spring when most needed. Sowing should be made in February, March and April at the rate of approximately 1 lb. per acre in drills about 2ft. 6in. apart. Thin out when the plants are large enough and cultivate. Great success has also attended broadcast sowings of this crop at the rate of about 1 to 3 lbs. per acre, mixed with sand or fertiliser, to ensure even sowing. The best roots may be pulled for market and the balance grazed with sheep or cattle. This is the cheapest method of growing Swedes, as there is no thinning out or weeding to do. A bag of superphosphate per acre will cause considerable increase in weight and vigour of crop.

Yates' Champion Purple Top—A standard globe-shaped variety, which gives wonderful returns and is the standard sort for growing for market. Our strains are unexcelled, the crop comes in evenly and the Swedes are well shaped, large, and keep well. Also excellent for stock feed.

Yates' Monarch—A large tankard-shaped variety with purple top. Heavy yielder and good keeper. Excellent for stock or market growing.

FIELD TURNIPS—Valuable for providing stock feed in the winter and early spring months. They are quick growers, especially the white-fleshed sorts. They can be planted when it is too late to sow Swedes, and will yield heavy crops. Sow about 1 lb. per acre in drills, or broadcast as suggested for Swedes. We stock the leading varieties, both white and yellow fleshed.

MANGOLDS AND SUGAR BEET—Wonderful milk producers, and yield immense crops. In cool climates sow about September-October; in warm climates an autumn sowing will give a fine winter crop. Plant

in well-worked clean land, in drills 30 inches apart, to allow horse cultivator to work, and when up, hoe to remove any growth of weeds, and if necessary, thin out to allow the roots to develop. Five pounds per acre of Mangolds and about 8 lbs. of Sugar Beet are fair sowings. The best varieties are:—

Yates' Mammoth Long Red.

Yates' Champion Yellow Globe.

Sugar Beet Wanzleben.

Giant Half-Sugar Mangold.

SALT BUSH—In the drier climates the Salt Bushes make excellent feed. They give good feeding during the summer months. The creeping variety (*Semibacata*) is coming into some prominence for sowing with *Phalaris tuberosa* in districts of good winter rainfall but very dry summers. Bladder Salt Bush (*Vesicaria*) is also valuable for pastures. Old Man Saltbush, if sown in selected areas, makes a good drought reserve. They are easily raised from seed or cuttings. One pound should seed an acre. The seed appears to sprout best when sown in winter while the ground is cool and moist.

KURRAJONG (*Sterculia Diversifolia*)—Many stock owners have to fall back on edible scrub for the stock during drought, and the foliage of this tree has considerable value, as well as being very ornamental and enhancing the value of property.

TAGOSASTE (so-called Tree Lucerne)—Suitable for hedges or breakwind and a stand-by against droughts.

MEDICAGO ARBOREA (the real Tree Lucerne)—A yellow-flowered ornamental shrub with dense soft foliage, closely resembling lucerne. Grows 6-8 feet high, and is useful for fodder.



YATES' CHAMPION PURPLE TOP SWEDE.
Largely grown for Winter sheep feed in the colder districts.

If interested in Vegetable Market Growing, our latest publication, "Vegetable Market Crops," should be helpful.

TERMS OF BUSINESS.

CONDITIONS OF SALE AND NON-WARRANTY.

WE believe that all Seeds Bulbs and Roots sold by us are of the description and kind specified by us at the time of sale but owing to the practical impossibility in many cases of being certain of this we give no undertaking that such Seeds Bulbs or Roots will correspond with the description under which they are sold and we make all sales subject to this condition. We further give no warranty expressed or implied as to their growth description quality or productiveness and will not be in any way responsible for the crop. If the purchaser does not accept the goods sold to him on these terms they are at once to be returned to us and any money paid to us will be refunded.

ARTHUR YATES & CO. PTY. LTD.

PRICES.—We do not print prices in this Descriptive List, as values fluctuate, and some of our supplies have not been received into store at time of going to press. All charges are set out in our Price List of Farm Seeds current at time of booking order. The Price List now current is sent you herewith, and later issues will be posted promptly on receipt of enquiry.

DELIVERY.—We deliver Seeds on rail or wharf, Sydney, after which Seeds are on customer's account and at his risk. Orders sent by goods train are consigned carriage forward (except to unattended platforms), unless we are otherwise instructed at time of order. Delivery within the Suburban area of Sydney will be made of Farm Seeds, Seed Potatoes, Manures, and Garden Sundries, at the following rates:—Up to 14 lbs., 6d.; up to 28 lbs., 9d.; sack lots, 1/-; over sack lots, 6d. for every additional package.

FORWARDING INSTRUCTIONS.—Please give full and careful directions with each order and we will do our utmost to comply with them. When no instructions are received we send according to our judgment.

TERMS OF PAYMENT.—Our terms are nett cash with order (including allowance for freight if goods are required by coastal steamer or passenger train, or by goods train to unattended platforms).

SOWING CALENDAR.

Approximate times for sowing are denoted by :

† For moderately warm climates where Oranges thrive.

* For cool climates, say where English Fruits thrive.

The most suitable times for sowing are very largely influenced by local conditions and seasons, and these and any local experience available should always be taken into consideration.

FARM SEEDS.	Jan.	Feb.	Mch.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	FARM SEEDS.	Jan.	Feb.	Mch.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Artichoke, Jerusalem ..						†	†	†					Oats, for Grain and Hay ..	†	†	†	†	†	*	*	*	*	*	*	*
Barley, Cape and Skinless ..	*	†	†	†	†	†	*						Paspalum ..	†	†	†				†	†	†	†	†	†
Barley, English ..	*	†	†	†	†								Peanuts ..			†	†				†	†	†		
Beet, Sugar ..			†	†	†				†	†	†		Peas, Field, for Fodder ..		†	†	†	†	†	*	*	*	*	*	*
Beet, Silver (Field) ..			†	†	†			†	†	†	†		Peas, Field, for Soiling ..		†	†	†	†	†	*	*	*	*	*	*
Buckwheat ..								†	†	†	†		Peas, for Garden ..	†	†	†	†	†	†	†	†	*	*	*	*
Canary ..			*	†	†								Peas, for Market ..	†	†	†	†	†	†	†	†	*	*	*	*
Carrot (Field) ..		†	†					†	†	†			Pumpkins ..								†	†	†		
Cabbage (Cattle) ..		*	*	*					†	†	†	*	Potatoes ..		†	†			†	†	†	†	*	*	*
Chicory ..			†	†					†	†	†		Rape ..			†	†	†	†	†	†				
Clover (Sorts) ..			*	†	†	†	*	*	*				Rye Corn ..		†	†	†	†	†						
Couch ..	†							†	†	†	†	†	Rhodes Grass ..		†	†						†	†	†	†
Cow Peas ..									†	†	†		Saltbush ..			†	†	†							
Grasses, Pasture ..			†	†	†	†	*	*	*				Shallots ..			†	†	†	†						
Kale, Thousand Headed ..	†	†	†	†								*	Sheeps Burnet ..			†	†	†	†		†	†	†	†	†
Kale, Chou Moellier ..	†	†	†	†								*	Sorghums ..		†	†	†	†	†		†	†	†	†	†
Linseed (Flax) ..						†	†	†					Soy Beans ..		†						†	†	†	†	†
Lucerne ..			†	†	†	†	†	†	†				Sudan Grass ..								†	†	†	†	†
Lupins ..			†	†	†	†	†						Sunflower ..								†	†	†		
Maize, for Grain ..									†	†	†	†	Swede ..		†	†	†		*						*
Maize, for Fodder ..		†	†	†					†	†	†	†	Tagosaste ..				†	†	†		†	†	†		
Mangel ..			†	†					†	†	†		Tares ..			†	†	†	†	*	*	*			
Mangel, Half Sugar ..			†						†	†	†		Tobacco ..									†	†		
Millet ..	†	†							†	†	†	†	Turnip (Field) ..			†	†	†	†						
Millet, Broom ..									†	†	†	†	Velvet Beans ..									†	†	†	†
Mustard ..			†	†	†		†	†	†				Wallaby Grass (Danthonia) ..			†	†	†			†	†			
Melon, Cattle ..									†	†			Wheat, for Fodder ..			*	†	†	†	†	†	†	*	*	*
Oats, for Fodder ..		*	†	†	†	†	*	*	*				Wheat, for Grain ..					†	†	†	†				

YATES' FARM SEEDS ARE CLEANED GRADED AND TESTED.



"How and Where can I get **YATES'** **FARM SEEDS?"**

Yates' Farm Seeds, like all other Yates' Seeds, are available through the resources of your own town. The business men stocking Yates' Seeds have Yates' current price list of Farm Seeds available at all times, and can quote you for immediate delivery on any items listed. The same service of Yates' Farm Seeds is available through other business houses in each town, who deal in Farm Seeds. Behind this is Yates' prompt service to all their customers; most orders received are despatched the same day in just the quantities wanted by each customer. Yates' Farm Seeds are delivered free on rail or steamer, and your local wholesaler can usually give you a very close estimation of freight charges.

Yates' Packet Seeds, Vegetable Seeds and Flower Seeds are post free and are immediately available to you at Sydney prices.

WHY ARE THEY IN SEALED BAGS?

For your protection, all parcels of Yates' Seeds are sealed so that you can be certain that the package you receive is in its original state and you are sure of getting Yates' Reliable Seeds just as despatched. Behind the seal stands an organisation carefully built up to provide you with seeds which have been tested for germination by the latest up-to-date scientific methods in the Company's own laboratory. About ten acres of trials are grown to maturity each year to enable the Company to know the quality of the seeds they are selling. The most complete and varied seed-dressing plant in Australia is your assurance that Yates' sealed seeds are of the highest quality and free of all deleterious matter and weeds, so that you are not risking failure of "strike," and fouling of the land by sowing. A lighter sowing can be made.

ARTHUR YATES & CO. PTY. LTD.

**SUPPLIERS OF RE-CLEANED
AND TESTED FARM SEEDS.**

184-186 SUSSEX STREET, SYDNEY, N.S.W.

LETTERS—G.P.O. BOX 2707 C.

PHONE—MA 6771.

TELEGRAMS—"SEEDSMAN," SYDNEY.